Mt. Sicker Property
Report on the 1987 Drill Program
Victoria Mining Division
NTS 92 B/13W
48°59' Latitude; 123°51' Longitude

Owner/Operator: Minnova Inc.

by G. S. Wells

September 11, 1987

Claims

Coppermint 1	Bluebell
Coppermint 2	Doubtful Fraction
Coppermint 3	Estelle
Copper Canion	Thelma Fraction
Tyee	Belle
Morley-Jane	Sicker 1
Donald	Richard III

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Report on the 1987 Drill Program
Mt. Sicker Property

1. Introduction

This report summarizes the results of the 1987 spring drill program on Minnova's Mt. Sicker property. A total of 16 diamond drill holes (3217.2 meters) were completed by F. Boisvenu Diamond Drilling Ltd. of Vancouver. The drilling commenced on May 25, 1987 and was completed on July 16, 1987.

a. Location and Access

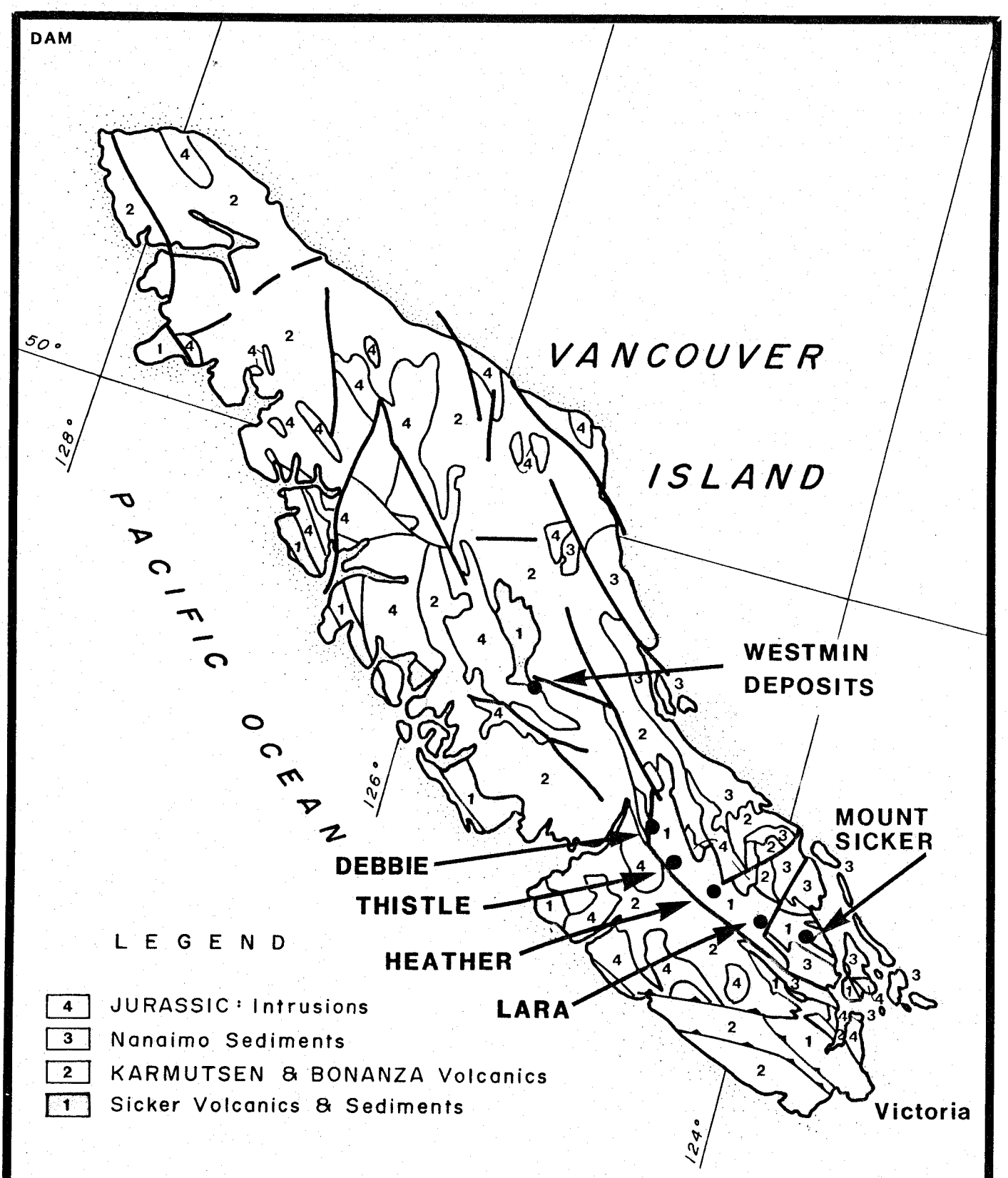
The Mt. Sicker property is located 40 km and 10 km north of Victoria and Duncan respectively (Figure 1). An extensive system of logging roads from the Island Highway provide excellent access to the property. Topographic relief is moderate with elevations ranging from 150 to 700 meters above sea level. The property is covered by a mixed forest of Douglas fir, alder and cedar. Active logging is currently underway in several parts of the property.

b.Property Status

The Mt. Sicker property consists of 4 contiguous options (Postuk-Fulton, Peppa, Lieberman, Canamera) and CFC claims for a total of 198 units . The claims listed in Appendix I and outlined in Figure 2 have been subdivided into the Rocky, Lenora and Cu Canyon groups.

c. History

Two former producers - the Lenora and Tyee mines occur on the Mt. Sicker property. These deposits were discovered in 1898 and were largely mined out by 1909 although they were worked periodically until 1947. A total of 300,000 tons grading 3.31% Cu, 7.51% Zn, 2.75 oz./ton Ag and 0.13 oz./ton Au were recovered from these 2 mines. Recent exploration on the property has been done by Duncanex, Mt. Sicker Mines and Serem in the vicinity of the former mines and the Postuk-Fulton and NE Copper showings. Minnova Inc. (formerly Corporation Falconbridge Copper) has been active of the property since 1983. We have carried out an integrated exploration program consisting of geological, geochemical and geophysical surveys which have been followed up by diamond drilling. All aspects of this continuing program have been aimed at



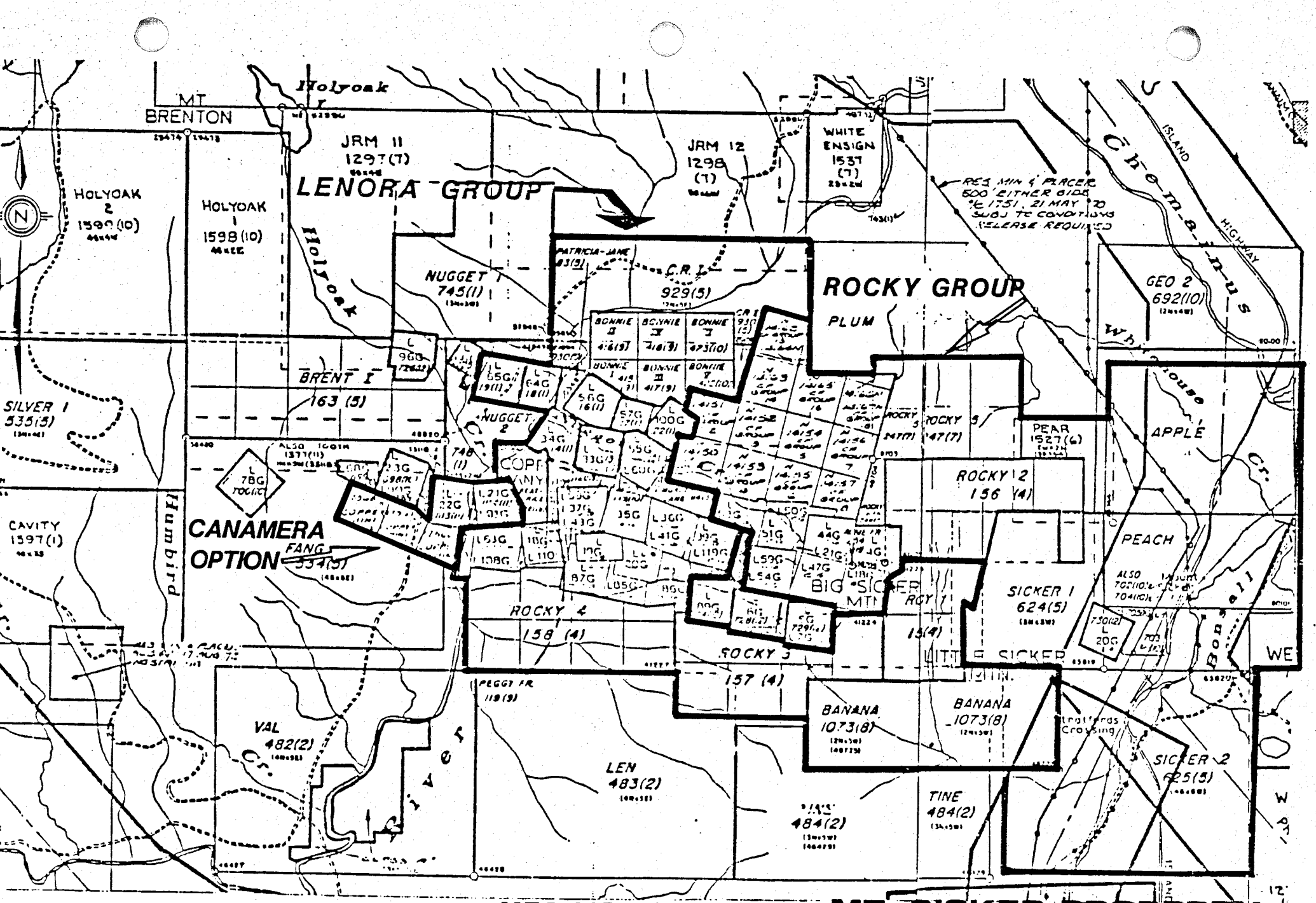
VANCOUVER ISLAND

GEOLOGY

SCALE: 1:2,000,000

MINNOVA

DM October 1987



NTS 92B/13

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MT. SICKER PROPERTY

CLAIM MAP

MINNOVA

FIGURE 2

discovering a polymetallic volcanogenic massive sulphide deposit.

2. Geology

a. Regional Geology

The Mt. Sicker property is located in the Cowichan-Horne Lake uplift which is one of 3 fault-bounded areas that expose the Paleozoic Sicker Group on Vancouver Island (Figure 1). Muller (1980) subdivided the Sicker Group, as follows, in order of increasing age:

1) Buttle Lake Formation - consists of recrystallized crinoidal limestone interbedded with calcareous siltstone and chert
2) Sediment - Sill Unit - thinly bedded to massive argillite, siltstone and chert interlayered with diabase sills
3) Myra Formation - basic to rhyodacitic banded tuff, breccia and lava with interbedded argillite, siltstone and chert
4) Nitinat Formation - basaltic lavas and agglomerates with minor to massive banded tuff layers

Cretaceous sediments of the Nanaimo Group unconformably overly the Sicker group; the contact is commonly marked by a basal conglomerate containing volcanic fragments derived from the Sicker Group.

The structure of the Sicker group is characterized by southwest verging, asymmetric and vertical, open and isoclinal folds (Muller, 1980). West - northwest and northeast trending faults disect the Sicker Group of the Cowichan-Horne Lake Uplift into numerous fault blocks. Movement along those faults is interpreted to have been mostly Tertiary in age (Muller, 1980). Metamorphic grade ranges from subgreenschist to greenschist.

b. Geology of the Mt. Sicker Property

The Mt. Sicker property is underlain by Sicker Group volcanic rocks, Nanaimo Group sediments and dioritic intrusions of possible Triassic age (Figures 3a, b). The Sicker Group can be subdivided into the Myra and Nitinat formations. The Myra formation consists of thick units of felsic and subordinate mafic pyroclastic/flow rocks with minor ash, argillaceous sediment and chert. The Lenora-Tyee massive sulphide deposits occur within the Mine package which is a distinct well-bedded, 70 meter thick succession of quartz +/- feldspar crystal tuffs, local felsic flows, fine felsic ash and minor chert and argillite.

The Lenora-Tyee deposits are considered to be the stratigraphic equivalent of Westmin's Myra-Lynx deposits.

The Nitinat formation is restricted to the east end of the property and is well exposed along the Island Highway. The formation consists of epidotized pyroxene and/or plagioclase porphyritic andesitic-basaltic flows, flow breccias and debris flows. The Myra-Nitinat contact is interpreted to be the stratigraphic equivalent to the "H-W Horizon" at Buttle Lake and as such is considered as a prime exploration target.

The structure of the Mt. Sicker property is dominated by a large asymmetric, west-northwesterly trending, shallow west-plunging anticline. The fold axis is interpreted to lie 300m north of the Lenora-Tyee deposits. The axial plane of the anticline is reflected by a pervasive moderately to intensely developed, vertically dipping foliation. Small drag folds associated with the Mt. Sicker anticline occur at NE Copper and Lenora-Tyee.

3. Work Completed

Fifteen diamond drill holes were completed and one hole was deepened for a total of 3217.2 meters. Lithogeochemical samples were taken routinely throughout the holes and analysed for major and trace elements (SiO_2, TiO_2, Al_2O_3, CaO, Na_2O, K_2O, MgO, MnO_2, FeO_3, Pb, Ba, Cu, Zn) at Min-En Laboratories in Vancouver. Mineralized sections were analysed for Cu, Zn, Ag and Au. The drill core is stored at 6722 Lakes Road, Duncan, B. C.

4. Drill Hole Summary and Results

Drill hole locations are shown in plan view on Figures 1 and 2. A brief summary of each hole is presented below whereas detailed descriptions are given in Appendix II.

CM-I

Hole CM-I tested two weak VLF conductors located 100 meters northwest of pyrite-chalcopyrite stringer mineralization exposed at the old Copper Canyon workings on the west side of the Chemainus River. A 7.7 meter wide pyritic stringer zone was intersected but metal values of this zone are low.

Summary Log

0 - 37.8	-	overburden
37.8-65.6	-	dacitic tuffs, crystal tuffs
65.6-69.7	-	andesitic tuff
69.7-175.6	-	dacitic tuffs, crystal tuffs
		86.5 - 94.2 - pyritic stringer zone
175.6 - EOH		

CM-2

Hole CM-2 tested a strong IP chargeability anomaly and the stratigraphy above a pyrite-chalcopyrite stringer zone. The hole was also designed to give a stratigraphic section of a zone of felsic to intermediate volcanic rocks which are believed to be correlative with the rocks hosting Abermin's Coronation zone. A predominantly andesitic package of tuffs and crystal tuffs was intersected and the abundant disseminated pyrite mineralization accounted for the IP anomaly. No zones of significant mineralization were intersected.

Summary Log

0 - 7.3	-	overburden
7.3 -54.9	-	andesite tuff, crystal tuff
		51.0 - 54.9 - py stringers, 3-15% py
54.9-59.0	-	QFP crystal tuff
59.0-70.3	-	andesite tuff, crystal tuff
70.3-72.1	-	siliceous felsic tuff
72.1-124.7	-	andesite tuff, crystal tuff
124.7-139.6	-	diorite
139.6-168.0	-	andesite tuff, crystal tuff
168.0-173.0	-	rhyodacitic tuff
173.0-187.0	-	andesite tuff
187.0-193.9	-	rhyodacitic tuff
193.9-EOH		

CM-3

Hole CM-3 was drilled to test the stratigraphy that could be equivalent of Abermin's Coronation Zone Horizon. The hole was collared in a QP flow or crystal tuff and then intersected a sequence of andesitic fragmental rocks. The hole ended in a diorite. The felsic, quartz-eyed rhyolites which host Abermin's mineralization were not intersected.

Summary Log

0 - 7.9	-	overburden
7.9 -24.1	-	QP flow or crystal tuff; fault gouge, moderate to strong sericite
24.1-49.1	-	andesite tuff, crystal tuff
49.1-70.1	-	andesite-basalt volcanic breccia
70.1-78.7	-	diorite
78.7-91.0	-	andesite volcanic breccia
91.0-114.0	-	diorite
114.0 - EOH		

CM-4

Hole CM-4 is the continuation of Canamera hole 86-5. The hole was deepened to test for the continuation of zinc mineralization in hole 85-3 which was collared 200 meters to the east. A thin graphitic argillite was intersected but there are no associated massive sulphides.

Summary Log

0 - 218.3	-	Logged previously
218.3 - 259.3	-	Felsic to intermediate crystal tuffs, weak chlorite
259.3 - 271.3	-	Felsic volcaniclastic - contains lithic fragments including argillite, matrix: weakly sericitic
271.3 - 272.35	-	Chert breccia/chert; 1-2% py as veinlets
272.35 - 272.7	-	Graphitic argillite and chert; 1-2% py
272.7 - 274.8	-	Felsic ash - intense sericite
274.8 - 289.95	-	Andesite ash and crystal tuff - weak epidote
289.95 - 312.7	-	Diorite

312.7 - EOH

CM-5

Hole CM-5 tested the extent of zinc stringer mineralization in hole 85-3, located approximately 100 meters to the east. A 16.2 wide zone of cherty argillite was intersected. No zones of significant economic sulphide content were encountered in the hole.

Summary Log

0.16.5	-	overburden
16.5 - 33.7	-	andesite tuff, crystal tuff
33.7 - 40.7	-	quartz-eye crystal tuff - fault zone
40.7 - 48.8	-	andesite lapilli tuff - tuff
48.8 - 59.8	-	rhyodacite crystal tuff
59.8 - 60.0	-	cherty argillite, 3-5% py
60.0 - 102.8	-	rhyodacite crystal - lithic tuff
102.8 - 119.0	-	argillite/cherty argillite, 3-5% py
119.0 - 140.3	-	andesite crystal tuff
140.3 - 147.8	-	diorite
147.8 - EOH		

CM-6

Hole CM-6 was drilled 150 meters east of hole 85-3 to test the strike extent of the argillite and zinc stringers intersected in that hole. A thin argillite was intersected in CM-6 near the lower contact of a diorite dike. The argillite is underlain by an altered felsic ash to crystal tuff. The Nanaimo sediments occur at the bottom of the hole giving a near vertical to steep northerly dip for the Nanaimo-Myra contact.

Summary Log

0 - 4.0	-	Overburden
4.0 - 31.75	-	Andesite tuff - weak chlorite - epidote
31.75 - 34.8	-	Felsic crystal tuff - pervasive chlorite, epidote

34.8 - 37.5	-	Diorite
37.5 - 42.45	-	Andesite crystal tuff - weak chlorite, epidote
42.45 - 46.45	-	Diorite
46.45 - 60.3	-	Andesite ash/lapilli tuff - weak chlorite
60.3 - 108.2	-	Diorite
108.2 - 108.25	-	Argillite
108.25 - 122.0	-	Felsic ash/crystal tuff 108.25 - 113.3 Intense sericite, 1% py, fault gouge 113.3 - 122.0 Moderate chlorite & sericite
122.0 - 155.0	-	Andesite ash and felsic crystal tuff - weakly chloritic
155.0 - 166.4	-	Nanaimo sediments - conglomerate, fault contact at 155.0 - 156.7
166.4 - EOH		

MTS-33

Hole MTS-33 was drilled to evaluate shallow level IP and lithogeochemical anomalies and the Myra-Nitinat contact. The hole intersected andesitic crystal tuffs with variable amounts of epidote patches. Pyrite content in these units was sufficient to explain the IP chargeability anomalies. The Myra-Nitinat contact was not intersected suggesting that the hole was drilled on the north limb of the Mt. Sicker anticlinal structure.

Summary Log

0 - 6.1	-	Overburden
6.1 - 96.0	-	Andesite crystal tuff with 5-10% epidote patches
96.0 - 104.25	-	Felsic tuff - chloritic, 5% py
104.25 - 345.1	-	Diorite with mafic, carbonate-rich dykes
345.1 - 374.5	-	Andesite crystal tuff/ash - pervasive epidote, weak to moderate chlorite; 2-3% pyrite
374.5 - 381.5	-	Felsic to intermediate crystal tuff - pervasively chloritic; 5% py
381.5 - 382.7	-	Andesitic ash
382.7 - 390.75	-	Andesite crystal to lapilli tuff; moderate epidote, weak chlorite

390.75 - 427.4		Felsic to intermediate crystal tuff - moderate chlorite-epidote, 3-5% pyrite
427.4 - 565.6	-	Andesite ash/crystal tuff with mafic + Q F P dykes. 428.5 - 437.0 10% dissem. py. 437.0 - 449.6 3-5% pyrite
565.6 - 603.6	-	Felsic ash/crystal tuff - moderate chlorite, 1-2% pyrite
603.6 - 625.1	-	Andesite crystal tuff - weak patchy epidote
625.1 - EOH		

MTS - 35

Hole MTS-35 was drilled to evaluate the extent and significance of zinc stringers intersected in hole MTS-30. Only minor sulphide mineralization was noted in the felsic volcanic rocks of the central mine package. The actual target may have been dilated by the diorite which was a lot thicker than expected.

Summary Log

0 - 0.6	-	overburden
0.6 - 198.8	-	diorite
198.8 - 202.8	-	fault gouge - sericitic
202.8 - 223.5	-	andesite tuffs
223.5 - 230.2	-	dacite tuff with 5-15% py at 223.5 - 224.7
230.2 - 258.5	-	rhyodacite quartz eye crystal tuff
258.5 - 266.7	-	andesite/dacite tuff
266.7 - EOH		

MTS-37

Hole MTS-37 tested the extent of stringer mineralization noted in hole MTS-24. A wide zone of stringer-type mineralization which assayed 400 ppm Cu over 22.8m is hosted in felsic weakly sericitic tuffs.

Summary Log

0 - 2.1	-	overburden
2.1 - 131.4	-	Felsic Tuffs with minor andesite crystal tuff and diorite dikes - Mine Package, weakly sericitic. 22.4 - 33.6 - 2-5% py 39.5 - 62.3 - 2-5% py, tr-1% cp; (400 ppm Cu over 22.8m).
131.4 - 139.3	-	Lenora Fault zone
139.3 - 142.5	-	Dacite-rhyodacite and andesite tuff, weak sericite/chlorite, 1-3% py
142.5 - 155.3	-	Tonalite dike
155.3 - 225.6	-	Dacite-rhyodacite tuff with minor andesite tuff tuff moderae chlorite-sericite; 1-3% py
225.6 - 226.2	-	Tonalite dike
226.2 EOH		

MTS-38

Hole MTS-38 tested the extent of zinc mineralization in the Mona shaft area; located 1.2 km east of the Lenora mine. A 1.5 meter thick pyritic ash which assayed 288 ppm Cu and 1500 ppm Ba was intersected. Bedding plane measurements suggest a shallow southerly dip which is consistent with the bedding noted in the surface trenches. This pyritic unit is possibly exhalative and warrants further follow-up drilling.

Summary Log

0 - 4.9	-	overburden
4.9 - 44.95	-	Diorite
44.95 - 52.25	-	Chert/Silicified Ash
52.25 - 74.95	-	Felsic Ash with chert fragments and beds. 68.75 - 70.1 - 2-3% py, tr cp; as veinlets/stringers 73.1 - 74.1 - 10% py, tr cp - stringers (0.37% Zn, 140 ppb Au/1.0m)

74.95 - 80.4	-	Quartz-phyric Crystal Tuff - sericitic
80.4 - 81.9	-	Pyritic ash with chert and qtz-phyric fragments 20-25% v.fgr. pyrite (288 ppm Cu, 17 ppm Zn, 1500 ppm Ba, 50 ppb Au/1.5m)
81.9 - 156.6	-	Felsic to Intermediate Ash 98.8 - 121.8 - moderately sericitic 131.4 - 156.6 - intense sericite-silica
156.6 - 179.4	-	Intermediate Ash Tuff
179.4 - 182.1	-	Mafic Dike
182.1 - 224.3	-	Intermediate Crystal Tuff/Ash - weakly chloritic
224.3 EOH		

MTS-39

Hole MTS-39 tested the new "Southern Horizon" which is thought to correlate with the Lenora mine sequence. Two zones of cherty argillite were noted. The units underlying these argillites are crowded quartz +/- feldspar crystal tuffs which are similar to those seen at the Lenora mine. No significant sulphides were intersected in MTS-39.

Summary Log

0 - 5.2	-	overburden
5.2 - 28.6	-	Diorite
28.6 - 45.25	-	Andesitic lapilli tuff and intermediate tuff - weakly chloritic; tr-5% py, tr cp.
45.25-46.3	-	Cherty argillite and chert; 3-5% py
46.3 - 59.6	-	Feldspar-quartz crystal tuff - weakly sericitic, 1-3% py
59.6 - 60.35	-	Argillite/cherty argillite; 1-8% py
60.35 - 61.3	-	rhyodacitic Q F P crystal tuff moderately sericitic, tr py.
61.3 - 74.8	-	Fault zone in felsic tuffs - strongly chloritic and sericitic
74.8 - 86.1	-	Felsic tuffs
86.1 - 93.8	-	Feldspar-phyric dike/flow - moderately sericitic
93.8 - 99.8	-	Fault zone in rhyolite-andesite tuffs.

99.8 - 101.3	-	Q F P crystal tuff - silicified, 1-3% py
101.3 - 118.2	-	Intermediate to felsic tuffs moderate chorite, sericite, 1-2% py
118.2 - 123.2	-	Feldspar-phyric dike/crystal tuff, silicified, 2-3% py
123.2 - 145.4	-	Q F P crystal/lithic tuff - moderately sericitic, tr-2% py.

145.4 EOH

MTS-40

Hole MTS-40 tested the "Southern Horizon" 1000 meters to the west of MTS-39. The argillite - QP crystal tuff sequence characteristic of the Southern Horizon was intersected but no economic sulphides were present.

Summary Log

0 - 7.6	-	overburden
7.6 - 14.4	-	Andesitic crystal tuff, weakly chloritic
14.4 - 23.4	-	Feldspar-phyric crystal tuff, weakly sericitic, 1-3% py.
23.4 - 32.6	-	Andesitic crystal tuff, weakly chloritic.
32.6 - 47.2	-	Felsic tuff with siliceous fragments, 1-5% py
37.2 - 81.9	-	Andesitic tuff/lapilli tuff.
81.9 - 87.4	-	QFP crystal tuff, weakly sericitic
87.4 - 119.8	-	Andesitic crystal tuff
119.8 - 154.2	-	Felsic crystal tuff/tuff, moderately sericitic, tr py.
154.2 - 158.4	-	Argillite/cherty argillite, 2-5% py
158.4 - 172.8	-	QP crystal tuff, tr py
172.8 - 188.1	-	Intermediate tuff, weak sericite/chlorite, tr py

188.1 EOH

MTS-41

Hole MTS-41 was drilled in the Mona shaft area to evaluate the down-dip extent of zinc stringer mineralization intersected in hole MTS-27. MTS-41 was almost entirely in diorite except for a thin sliver of silicified felsic ash. No economic mineralization was encountered.

Summary Log

0 - 7.3	-	overburden
7.3 - 113.9	-	Diorite with mafic dikes, pervasive carbonate
113.9 - 122.85	-	silicified Ash - blocky
122.85 - 147.6	-	Diorite - feldspar-phyric
147.6 - 160.3	-	F(Q)P dike
160.3 - 178.9	-	Diorite
178.9 EOH		

MTS-42

Hole MTS-42 tested the new "Southern Horizon" which is thought to correlate with the Lenora mine sequence. A thin cherty argillite and underlying QFP crystal tuff were intersected. However, there are no zones with significant sulphide contents.

Summary Log

0 - 9.4	-	overburden
9.4 - 43.4	-	Intermediate tuff/crystal tuffs, weakly sericitic, tr py
43.4 - 53.7	-	Diorite, feldspar-phyric
53.7 - 82.6	-	Andesite breccia/lapilli tuff, weakly chloritic, tr py 77.8 - 82.6 - minor chert
82.6 - 108.3	-	Diorite, feldspar-phyric
108.3 - 121.0	-	Andesite tuff
121.0 - 122.8	-	rhyolite tuff and cherty argillite, 1-2% py
122.8 - 158.6	-	QFP crystal tuff, moderately sericitic, tr py
158.6 - 186.3	-	Felsic cherty tuff, 1-2% py
186.3 - 191.1	-	Diorite
191.1 EOH		

MTS-43

Hole MTS-43 which is located 250 meters west of MTS-38 also tested the

extent of zinc mineralization in the Mona shaft area. A fine-grained, pyritic volcaniclastic with anomalous copper (255 ppm) and barium contents (1327 ppm) was intersected. This horizon can be correlated with a pyritic ash intersected in hole MTS-38 which is believed to be exhalative. Chalcopyrite-pyrite stringers were noted stratigraphically above and below the MTS-43 horizon. Additional follow-up drilling is warranted in the Mona area.

Summary Log

0 - 1.8	-	overburden
1.8 - 34.5	-	Diorite
34.5 - 75.0	-	Felsic Ash Tuff
		58.7 - 75.0 - moderately sericitic
		61.8 - 63.8 - 10-15% py, 1-2% cp as stringers (0.23% Cu over 2.0m)
75.0 - 79.3	-	Pyritic Volcaniclastic - 10-15% cherty fragments and light grey felsic ash; 5-7% v.fgr. pyrite (255 ppm Cu, 17 ppm Zn, 1327 ppm Ba over 4.3m).
79.3 - 131.4	-	Feldspar-phyric Crystal Tuff/Ash - patchy sericite
		130.5 - 131.1 - 25% py, 5% cp as stringer (1.29% Cu, 10.4 g/T Ag, 0.18 g/T Au over 0.6m)
131.4 - 143.35	-	Fortuna Fault gouge
		133.4 - 134.2 25% py, tr-1% cp as stringers (0.67% Cu over 0.8m).
143.35 - 152.4	-	Andesite crystal tuff - weak chl-ep; 1% py
152.4 - 174.2	-	Felsic to Intermediate Ash - weak sericite
174.2 - 179.65	-	Diorite - feldspar-phyric
179.65 - 184.7	-	Felsic Ash/Crystal Tuff - weak sericite
184.7 EOH		

MTS-44

Hole MTS-44 was drilled to test the exent of stringer mineralization in MTS-29. Although felsic tuffs of the central panel were intersected in the upper part of the hole, the target area was cut off by a thick diorite dike.p

Summary Log

0 - 4.9	-	overburden
4.9 - 51.0	-	Felsic crystal tuff/tuff
		4.88-32.2 - 1-5% py
51.0 - 51.6	-	Chert, tr py
51.6 - 66.3	-	Felsic tuff, patchy sericite, tr-1% py
66.3 - 76.0	-	Andesitic tuff with minor chert
76.0 - 80.6	-	Chert
80.6 - 96.6	-	Diorite, feldspar-phyric
96.6 EOH		

5. Conclusions

No zones of significant mineralization were encountered during the spring drill program but the drilling did enhance our understanding of the geology and structure of the Mt. Sicker area. Holes CM-1 to CM-6 were drilled on the west side of the Chemainus River on the Canamera Option. Holes CM-4, 5 and 6 intersected variable thicknesses of argillite which is correlated with the Lenora-Tyee horizon. Additional drilling is warranted around CM-5 which is close to Canamera hole 85-3 where zinc stringer mineralization was intersected. Hole CM-1 intersected a 7.7 meter wide zone of pyrite stringers with low metal values. CM-2 and 3 gave a section through the stratigraphy on the western edge of the property. Both holes encountered primarily andesitic material with only minor felsic interbeds. This is quite distinct from Abermin's Coronation zone where the mineralization is hosted in felsic, quartz-eyed crystal tuffs. A northeasterly trending fault may have offset the Coronation host rocks but the direction of movement along this structure is unknown due to the lack of a distinctive marker horizon.

Drilling on Mt. Sicker tested a variety of geological, geophysical and geochemical targets. Hole MTS-33 was drilled to test the Myra-Nitinat contact. The target was never reached as the hole stayed almost entirely within andesitic crystal tuffs of the Myra-Nitinat transition zone. Moderate core angles for bedding suggest that MTS-33 was drilled down the dip plane of the statigraphy. Thus the hole was collared on the north side of the Mt.

Sicker anticline. Holes MTS-35, 37 and 44 tested the extent of stringer type mineralization within the central panel of felsic volcanics. The only zone of significant mineralization was found in hole MTS-37 where a 22.8 meter wide zone assayed 400ppm Cu. Diorite dikes in the other 2 holes dilated the target areas. Holes MTS-39, MTS-40 and MTS-42 tested the new "Southern Horizon" which is thought to correlate with the Lenora-Tyee horizon. The argillite, quartz eye crystal tuff package which was intersected is similar to the package seen in holes CM-4, 5 and 6. Thus this southern argillite zone has been exposed for a strike length of 2.4 km. However, to date there are no economic sulphides associated with the zone. Holes MTS-38, MTS-41 and MTS-43 were drilled in the Mona shaft area located 1.2 km east of the Lenora shaft. A pyritic ash which was intersected in MTS-38 and MTS-43 has anomalous copper (288 ppm) and barium (1500 ppm) contents. This zone is thought to be exhalative in origin and as such warrants additional drilling. The target area was diked out in MTS-41.

Gary Wells

References

Muller, J. E., 1980: The Paleozoic Sicker Group of Vancouver Island, B. C.
GSC Paper 79-30, 22p

Itemized Cost Statement
1987 Drilling

Contractor - F. Boisvenu		
3217.2 m at 56.47/m		181,686.18
Machine, Man and Cat Hours		17,802.50
Materials		14,944.25
mob-demob		2,800.00
Salaries		
G. Wells	35 days at $350/day	12,250.00
M. Gray	35 days at $300/day	10,500.00
P. Postuk	19 days at $150/day	2,850.00
C. Higgins	16 days at $150/day	2,400.00
Field Expenses		
Truck #1	35 days at $50/day	1,750.00
Food/Accommodation	105 days at $40/day	4,200.00
Analyses		4,534.45
Report Preparation		
G. Wells	3 days at $350/day	1,050.00
Drafting, typing, materials, etc.		1,000.00
		257,767.38

Statement of Qualifications

I, Gary S. Wells, hereby certify that:

1. I hold an Honours Bachelor of Science degree in combined geology and chemistry (1975) from Carleton University, Ottawa, Ontario and a Ph.D degree in geology (1980) from Queen's University, Kingston, Ontario.

2. I am an associate member of the Geological Association of Canada and a member of the Canadian Institute of Mining and Metallurgy.

3. I have practised my profession in exploration continuously since graduation in 1980.

4. I have based conclusions contained in this report on knowledge of the area, my previous experience and results of field work conducted on the property.

Date: September 11, 1987

Gary Wells

Gary S. Wells, Ph.D.
Vancouver, British Columbia

Statement of Qualifications of Field Personnel

Michael J. Gray : B.Sc (Geology) 1985, University of British Columbia.

2 years full-time experience in mineral exploration

4 years part-time experience in mineral exploration

Address: c/o Minnova Inc., 4th Floor, 311 Water Street
Vancouver, B. C. (phone 681-3771)

Appendix I

Claims

Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources
MINERAL RESOURCES BRANCH–TITLES DIVISION

SUB-RECORDER
RECEIVED
MAY 16 1986
M.R. # ..... $ .....
VANCOUVER, B.C.

MINERAL ACT

FORM I

NOTICE TO GROUP

Mining Division ...Victoria..... Location ...Mt. Sicker Area.....

Name of group ...Rocky Group..... Map No. 92B/13W

We, the undersigned owners* of the following adjoining claims, desire to group them according to the provisions of the *Mineral Act*:–

NAME OF CLAIM	No. of Units	Record No.	Month of Record	SIGNATURE OF OWNER*	Free Miner Certificate No.
Sicker 1 ✓	9	624	5	Alex J. Davidson	212869 DAVIAJ
Rocky 2 ✓	8	156	4	as agent for	
Sicker 2 ✓	20	625	5	Corporation Falconbridge Copper	
Rocky 5 ✓	6	247	7		278726 CORFAC
Rocky 6 Fr. ✓	1	248	7		
Acme Fraction FR ✓	1	254	8		
CF Group #1 ✓	1	14150	10		
CF Group #2 ✓	1	14151	10		
CF Group #3 ✓	1	14152	10		
CF Group #4 ✓	1	14153	10		
CF Group #5 ✓	1	14154	10		
CF Group #6 ✓	1	14155	10		
CF Group #7 ✓	1	14156	10		
CF Group #8 ✓	1	14157	10		
CF Group #13 ✓	1	14162	10		
CF Group #14 ✓	1	14163	10		
CF Group #15 ✓	1	14164	10		
CF Group #16 ✓	1	14165	10		
CF Group #17 ✓	1	14166	10		
CF Group #18 ✓	1	14167	10		
Lawarance ✓	1	730	12		
Pear ✓	4	1527	6		
Peach ✓	12	1623	1		
Apple ✓	12	1624	1		
Acme MC ✓	1	4G			
Tony ✓	1	18G			
Donagan MC ✓	1	18G			
Dixie Fraction MC ✓	1	21G			
Golden Rod MC ✓	1	44G			
Nellena MC ✓	1	47G			
Moline Fraction MC ✓	1	50G			
Blue Bell MC ✓	1	51G			
Estelle MC ✓	1	53G			
Westholme MC ✓	1	54G			
	98				

* May be signed by agent on behalf of owner.

34 Jan

Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources
MINERAL RESOURCES BRANCH-TITLES DIVISION

SUB-RECORDER
RECEIVED
MAY 16 1986
M.R. # ..... $ .....
VANCOUVER, B.C.

MINERAL ACT

FORM I

NOTICE TO GROUP

Mining Division Victoria Location Mt. Sicker Area

Name of group Lenora Group Map No. 92B/13W

We, the undersigned owners* of the following adjoining claims, desire to group them according to the provisions of the *Mineral Act*:—

NAME OF CLAIM	No. of Units	Record No.	Month of Record	SIGNATURE OF OWNER*	Free Miner Certificate No.
Rocky 4 ✓	8	158	4	Alex J. Davidson	212869 DAVIAJ
Little Nugget ✓	1	13	1	agent for	
Chemainus ✓	1	14	1	Corporation Falconbridge Copper	
Belle ✓	1	15	1		278726 COREAC
Dunsmuir ✓	1	16	1		
Seattle ✓	1	17	1		
Copper King ✓	1	18	1		
Copper Queen ✓	1	19	1		
Queen Bee ✓	1	22	1		
Alliance Fr. ✓	1	120	9		
Patricia Jane Fr. ✓	1	83	5		
Peggy Fr. ✓	1	119	9		
Beatrice ✓	2	121	9		
Morley-Jane Fr. ✓	1	84	5		
Bonnie I ✓	1	415	9		
Bonnie II ✓	1	416	9		
Bonnie III ✓	1	417	9		
Bonnie IV ✓	1	418	9		
Bonnie V ✓	1	422	10		
Bonnie VI ✓	1	423	10		
CR I ✓	10	929	5		
CR II ✓	10	930	5		
XL ✓	1	19G			
Herbert ✓	1	20G			
Lenora ✓	1	35G			
Tyee ✓	1	36G			
Key City ✓	1	37G			
Richard III MC ✓	1	39G			
Magic Fraction MC ✓	1	41G			
NT Fraction ✓	1	43G			
International Fraction ✓	1	60G			
Donald ✓	1	63G			
Thelma Fraction ✓	1	85G			
Imperial Fraction ✓	1	86G			
Doubtful Fraction ✓	1	87G			
Muriel Fraction ✓	1	108G			
International A Fr. ✓	1	1119	10		
Westholme Fr. MC ✓	1	59G			
Phil Fraction ✓	1	110G			
Stephanie Fr. ✓	1	1074	8		
Rocky 1 ✓	4	155	4		
Rocky 3 ✓	8	157	4		
Banana ✓	10	1073	8		
	RR				

4/3 claims

Province of British Columbia
Ministry of Energy, Mines and Petroleum Resources
MINERAL RESOURCES BRANCH–TITLES DIVISION

SUB-RECORDER
RECEIVED
NOV - 6 1987
M.R. # ..... $.....
VANCOUVER, B.C.

MINERAL ACT

FORM I

NOTICE TO GROUP

Mining Division .....Victoria..... Location ...Mt. Sicker Area .....

Name of group ..CuCanyon Group..... Map No. ..M92B/13W...

We, the undersigned owners* of the following adjoining claims, desire to group them according to the provisions of the *Mineral Act*:–

NAME OF CLAIM	No. of Units	Record No.	Month of Record	SIGNATURE OF OWNER*	Free Miner Certificate No.
Copper Canion	1	1113	Nov	Gary S. Wells	298225
Victoria	1	1114	Nov	agent for	
Elmore Fraction	1	1115	Nov	Minnova Inc.	279317
Copper Mint No. 1	1	17566	Aug		
Copper Mint No. 2	1	17567	Aug	Gary Wells	
Copper Mint No. 3	1	17568	Aug		

* May be signed by agent on behalf of owner.

Appendix II

Drill Logs

HOLE NUMBER: CM-1 DRILL HOLE RECORD IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SIC
PROJECT NUMBER: 326
CLAIM NUMBER: COPPER CANION
LOCATION: NTS: 92B/13

PLOTTING COORDS GRID: IDEAL
NORTH: 88.00N
EAST: 111.00W
ELEV: 178.00

ALTERNATE COORDS GRID: FIELD
NORTH: 0+88N
EAST: 1+11W
ELEV: 178.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 175.56m
START DEPTH: 0.00m
FINAL DEPTH: 175.56m

COLLAR GRID AZIMUTH: 210° 0' 0"
COLLAR ASTRNOMIC AZIMUTH: 210° 0' 0"

DATE STARTED: May 25, 1987
DATE COMPLETED: May 27, 1987
DATE LOGGED: 0, 0

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: F. BOISVENU
CASING: 37.8m
CORE STORAGE: 6722 Lakes Rd., Duncan

PURPOSE: TO TEST VLF ANOMALY WEST OF COPPER CANYON

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
44.50	-	-44°30'	ACID	ok		-	-	-	-	-	
74.98	-	-43°30'	ACID	ok		-	-	-	-	-	
105.46	-	-45°30'	ACID	ok		-	-	-	-	-	
132.89	-	-45°30'	ACID	ok		-	-	-	-	-	
163.37	-	-45° 0'	ACID	ok		-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
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LOGGED BY: M.J. GRAY

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
0.00 TO 37.80	CASING					OVERBURDEN
TO 81.40						
37.80 TO 65.70	DAC-RHYODAC QTZ EYE CX TUFF -F.TUFF	Lt-med grey, greenish hue Vfg matrix, f-c crystals Moderate foliated, rel homog. looking Dac-Rhyodac tuffs with 1-8% phenocrysts. Qtz eyes 1-5%, ave 2%, <1-4mm, aver <1-1mm Fol'n 30-45	30	VW-M ser, loc S ser'z Loc W chl with variations in compn.	2-5% FG py as dissem & loc narrow cont-discon str	Litho: BCD# 6398 41.55 - 44.55m
		Fp phenos nil - 5%, <1-1mm Mafic phenos nil -5%, <1x2mm				
		37.8-44.5m Vlt-light grey-green, Dac tuff with 2-3% <1mm glassy qtz eyes. Rel homog. looking		VW-W ser'z W-mod calc +/- qtz 2mm veinlets	2% py	
		44.5 - 47.2m Light green-grey dac tuff/cx t with 1-3% qtz eyes <1-2mm, ave. <1mm. Also 2-5% mafic (?) chlz stretched phenos <1x2-3mm Fol'n 25-35	30	Sel M chl'z of of mafic phenos W-S ser'z, ave M-S	2-5% py diss TH-0	
		47.2 - 53.0m Dac-Rhyodac T/CX tuff, Lt grey-green. Locally crudely banded. Qtz eyes 2-3%, <1-2mm, ave 1mm.		W-M Ser +/- Chl at 47.2-51.0m VW-W ser'z at 51.0 - 53.0m	2-5% py diss'ed, loc discon str. i.e., 52.8m; 1mm, py, c/a 25 degrees	
		53.0 - 53.7m Rhyodac aphyric ash, vlt grey		W ser	3% py	
		53.7 - 54.25 Rhyodac T/CX tuff, 1-2% qtz eyes <1-1mm		VW-W ser	5% py	
		54.25 - 54.45m And fp Cx tuff or dior dyke(?) Top Ctc sheared Bot Ctc sheared	20 35	W ser M clay - chl gouge plane	tr py	
		54.45 - 65.7m Dac tuff/qtz-eye, Fp phyric cx tuff. 1-2% quartz eyes <1-1mm, fp phenos 2-3%, <1mm Fol'n Bot CTC	45 35	v ser	2-5% py	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
65.70 TO 66.40	AND TUFF (POSS DYKE?)	M-dark green Vf-f Moderate foliated, rel. homogeneous and aphyric F. tuff. Fol'n Poss a dyke, but no chills noted	30	W/W-M Chl'z	2-3% very fine grained diss py	Litho BCD# 6399 65.7 - 68.7 (excludes 66.4-66.6)
66.40 TO 66.10	CHERTY DAC TUFF	Light grey Aph-very fine grained Crudely banded, weakly foliated cherty dac tuff. Has 2-4mm thick laminations, contorted. Layering	45	VW Ser 2	2% diss. f.g. py.	Poss a bleached quartz-veinged equivalent of the and T.
66.60 TO 69.00	AND/AND-DAC TUFF	Medium-light green Vf-f Moderately foliated, rel. homogeneous And/And-Dac tuff aphyric. Foliaton	30	W-M chl'z M <1mm calc. veinlets	1-3% py dissem.	
69.00 TO 80.40	DAC & RHYODAC TUFF/CX TUFF	Light grey with green tinge VG-F ax, f cx Moderately foliated, homogen. looking Dac tuff and rhyodac quartz eye cx t. Foliation (15-35) Top ctc. 20-25 Dac tuff very light grey, trace 2% <<1mm qtz eyes. Loc up to 2% FP phenos but not typical of interval	20 20	Tr-W Ser'z Loc M ser'z at 74.8 - 75.2m	1.5% py FG mainly as dissen., ave 2% py	
80.40 TO 80.90	FAULT/ SHEAR	Light grey Fine grained. S. foliated/sheared, minor gouge in Dac FP phyric tuff Top ctc Bot ctc	70 40	M ser'z TH-O W bleached +/- clay W-M quartz +/- calc veins	3% diss. fine grained py	Bot ctc marked by quartz +/- calc. vein
80.90 TO 86.60	RHYODAC-DAC F. TUFF & CX TUFF	Light grey - sl green VF-F grained Moderately foliated, rel. homog. looking rhyodac-dac tuff/cx tuff. Foliation Fine <<1-1mm quartz eyes <1-3%, loc FP 2% <<1mm phenos	40	W/W-M ser'z	2-5% FG diss py TH-O	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
86.55 TO 87.10	FAULT	Light green & m.grey & white F-ax, fine-coarse fragments. Sheared/brecciated zone, strongly sheared cataclatic section. Has pseudo-banded texture, prob. Dac compn. Bot ctc Top ctc Shear 45-80	 50 45 75	S ser'z +/- chl'z Calc as <1cm lenses (5%)	5-8% py fine grained as dissn. & discontinous stringers	Note greyish bands/seams in fault are not carbonaceous. Geochem: BCD#6351 86.55 - 87.10 m 5-8% py
87.10 TO 92.35	DAC-RHYODAC T/CX T STRINGER ZONE	Pale-light green & whitish grey VF-ax, F-CX M-s. Foliated +/- sheared Dac and F. tuff/F CX tuff 2-3% <1mm quartz eyes loc 5% <1mm FP No visible laminations Stringers appear boundined internally in the thick veins or subparallel veins.		S Ser'z +/- Chl'z M bleached (?) W-I quartz +/- py veins as continuous <1-40 cm veins, + discont. irregular narrow <2cm veins. The thickest stringers (40 cm) are actually a series of subparallel veins with remnant lenses (boudined)? of tuff, i.e., 87-35 - 88.25 qtz (see py section)	5-25% py as diss'n/stringers i.e., 87.10 - 87.25m: 3-5% py, diss. 87.35 - 88.25m: 20% py as patches + stringers in quartz vein c/a 30-45 89.00m: 2cm, qtz-py (20%) c/a 30 90.10m: 8 mm, qtz-py (20%) c/a 30 90.30 - 91.15: series of 1cm qtz-py *Veins subpar c/a 40 degrees, note* large patches of py 2 x 2cm pseudo lenses (boudined?) 91.70m: 1 cm, 10% py, c/a 35 92.10m: 2 mm, 50% py, c/a 40-45 Background of 5% diss py TH-O tuffs.	Geochem: BCHD 6352 87.10 - 88.25m Geochem: BCD#6353 88.25 - 89.25m Geochem: BCD#6354 90.30 - 91.15m Litho: BCD#6400 89.25 - 90.30 Geochem: BCD#6355 91.15 - 92.35m
92.35 TO 104.60	RHYODAC F.TUFF & QE CX TUFF +/- FP	Very light grey-green, locally silvery VF MX, F. CX W-M foliated, rel. homogeneous looking Dac-Rhyodac tuff with variable qtz-eye and FP phenocryst content. Quartz eyes 3-5%, <1-1mm, FP phenos <1-3%, <1mm Fol'n	 35	VW-W ser'z W - Calc +/- quartz veins <1-2mm Thick.	2-5% py fg as dissen. & minor str., i.e., 94.0m, qtz-py, 5mm c/a 35 degrees	Note: Shears at 97.20 - 97.40 m and 102.40 - 102.60
104.60 TO 118.00	SILICEOUS TUFF with QTZ EYES & interlayers FP PHYRIC BANDS	White-lt. grey with m green bands, v fine-med cx aph-vf mx W. foliated, mod. banded Dac-rhyodac siliceous tuff (cherty tuff) w/Dac FP phyric interbands Bands & Fol'n (35-40) Individual siliceous tuff bands (95%) range 4 mm - 10 cm, aver. 3cm whereas FP phyric bands/ layers (5%) are 2-20 mm, ave 5mm.	 35	Tr VW ser'z Poss. silif'n as bands (?), but many have qtz eyes Loc w sel EP'z of FP phenos	2-3% py as FG dissemination, locally up to 5% diss. py	Note bands localy distorted, pseudomott led texture Interval defined by distinctness of banding. Litho BCD# 3951 108.00 - 111.00

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		Quartz eyes 1-3% <1-1mm mainly in rhyodac bands. FP phenos locally in bands 3-5% FP 1mm.				
118.00 TO 123.30	RHYODAC QTZ EYE CX - TUFF	Light grey - SL green Aph-VF MX. F - CX Weakly foliated, locally banded rhyodac qtz eye CX tuff. 3-8%, ave 5% qtz eyes <1-1mm Fol'n (25-40)	30	VW Ser'z. Loc patchy Silicified (?) mottled sections, pseudobanded	1-3% diss. py.	
123.30 TO 128.40	DAC-RHYODAC SILICIFIED QTZ EYE + FP PYRIC TUFF	Lt-,m green with vlt. grey mottled patches/bands VF-F ax, F-M CX Weakly foliated, crudely banded tex. due to poss patchy silicificaton in Dac-Rhyodac qtz eye CX tuffs (+/- FP phenos). Qtz eyes 2-3%, <1mm FP phenos loc @ 124.0 - 126.0 3-5% FP 1-1 mm Fol'n 30-40 (silica bands/patches irregular)	30	Tr - VW ser. Patchy elongate bands parallel foliation, style of silic'n ? Poss. devitrif'n texture, but unlikely as this is a good tuff with variations in phenocryst type and content	1-5% py dissem, ave 3-5% py	Note: qtz eyes in patchy bands. Poss. not as silicif'n but rather compositioning as suggested by AJD.
128.40 TO 130.20	FAULT BLOCKY SECTION	Light green F ax. F-M Fault w/local narrow gouge planes, otherwise sheared and broken up core in above Dac-rhyodac CX tuff Top CTC 40-50 Gouge Bot CTC	40 20 15	W-M Ser'z, loc S ser w/clay along 5mm gouge planes	1-3% FG diss py	
130.20 TO 134.50	DAC SILICIFIED? QTZ EYE - FP PHYRIC TUFF	Light grey-green VF - ax. F-M cx VW foliated, crudely banded (due to alteration), similar to above Dac qtz-FP phyric tuffs. Qtz eyes 1-5% ave. 1-2%, <1-1mm. FP loc up to 5% <<1mm. Silica bands/patches	30	TR - VW Ser'z As above, irregular patches/bands of mottled silica W-M 1-2 mm Calc +/- qtz veinlets	3-5% py as FG dissn'	Note possible lapilli size frags. (3-5 mm) although dificult to be seen due to alt'n.

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
134.50 TO 134.70	FAULT	Lt-med green-grey F ax., Fragments 2-5mm Fault, narrow with minor gouge and fault BX in above Dac tuffs Top CTC Bot CTC	 30 65	 W-M ser, loc S with clay in gouge Mod calc & qtz veinlets 1-2mm thick	 3-5% FG diss'ed py	
134.70 TO 175.56	DAC QTZ-EYE +/- FP CX TUFF E.O.H.	Lt +/- med grey-green vf ax, f-m cx W foliated, relatively homogeneous looking overall as patchy silicif'n is persistent throughout. Similar to above mottled Dac-rhyodac tuffs/qtz. eye +/- FP CX tuffs. Note local sectons FP phyric qtz eyes 1-8%, ave 3%, <1-2mm ave <1-1mm. FP phenos Nil -5%, <1-1mm 134.7 - 139.8m: Dac qtz eye CX tuff 3-5% qtz eyes 139.8 - 142.2m: Dac-rhyodac qtz eye (5-8%) CX tuff 142.2 - 147.7m: Dac qtz (3%) FP (3-5%) CX tuff 147.7 - 149.7: Dac FP (5-10%) - qtz eye (2%) phyric CX tuff 149.7 - 155.90: Dac FP (1-5%, ave. 2-3%) - qtz eye (3-5%) CX tuff 155.90 - 162.20: Dac-rhyodac qtz eye (1-5%, ave. 3%) CX tuff 162.20 - 169.47: Dac FP (2-5%) - qtz eye (1-5%, ave 3%) CX tuff 169.47 - 172.30: Dac-rhyodac qtz eye (2-3%) CX tuff 172.3 - 175.56m: Dac qtz eye (3%), FP (3-5%) phyric CX tuff. END OF HOLE		- tr vw serz Mottled patchy banded silification? Locally T -mod sel Ep'z of FP phenos W-M calc +/- qtz 1-3mm veinlets throughout. Not as mottled, poss. not silicf. - M sel EP'z of FP phenos	2-5% py mainly as dissem; ave 2-3%. Locally <1% cpy over narrow intervals. 146.60 - 146.80; 1-3% py <1% cpy Note: str @ 137.60m Discon 2-12mm thick py +/- ser stringer with FG brassy py and vfg dark brown py. C/A 30-60 degrees.	Litho: BCD# 3952 136.0 - 139.0m. Litho: BCD#3954 157.5 - 159.0m Litho: BCD#3953 163.0 - 166.0m

Sample	From (m)	To (m)	Length (m)	GEOCHEMICAL Cu ppm	Zn ppm	Ag ppm	Au ppb		COMMENTS
6351	86.55	87.10	0.55	34	32	1.2	10		
6352	87.10	88.25	1.15	54	17	1.0	30		
6353	88.25	89.25	1.00	22	37	0.9	5		
6354	89.25	91.15	1.90	32	16	1.2	5		
6355	91.15	92.35	1.20	12	36	1.0	5		

Sample	From (m)	To (m)	Length (m)	SIO2 %	AL203 %	CAO %	MGO %	NA2O %	K2O %	FEO %	MNO %	TIO2 %	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	AS PPM	SB PPB	SR %	ZR %	TOTAL %
6398	41.55	44.55	3.00	71.59	14.48	1.36	1.85	0.36	3.30	2.84	.08	.30	.121	13	30	10	.08	15	5	1	.01	.009	96.30
6399	65.70	68.70	3.00	58.30	17.97	1.02	4.55	3.49	1.69	7.69	.22	.66	.046	68	72	4	1.0	10	10	1	.01	.005	95.65
6400	89.25	90.30	1.05	70.56	12.54	1.10	2.43	0.19	2.80	5.83	.09	.29	.088	6	37	6	0.8	5	9	1	.01	.006	95.95
3951	108.00	111.00	3.00	71.54	12.77	2.52	1.56	2.25	1.92	2.04	.08	.14	.117	8	14	4	0.7	5	4	1	.01	.005	94.96
3952	136.00	139.00	3.00	69.64	14.73	0.49	2.85	2.63	2.20	3.84	.13	.32	.117	26	32	9	0.7	10	2	1	.01	.005	96.98
3954	157.50	159.00	1.50	68.06	14.79	0.76	2.10	4.38	1.62	3.89	.13	.32	.085	15	47	9	0.9	5	7	2	.01	.005	96.15
3953	163.00	166.00	3.00	67.92	14.44	1.02	2.27	4.23	1.36	3.47	.15	.29	.066	34	46	10	1.0	5	8	1	.01	.005	95.26

MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: CM-2

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SIC
PROJECT NUMBER: 326
CLAIM NUMBER: COPPERMINT III
LOCATION: NTS 92B/13

PLOTTING COORDS GRID: IDEAL
NORTH: 246.00N
EAST: 1093.00W
ELEV: 387.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 0.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 193.85m
START DEPTH: 0.00m
FINAL DEPTH: 193.85m

COLLAR GRID AZIMUTH: 210° 0' 0"
COLLAR ASTRNOMIC AZIMUTH: 210° 0' 0"

DATE STARTED: May 28, 1987
DATE COMPLETED: May 31, 1987
DATE LOGGED: 0, 0

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: F. BOISVENU DRILLING
CASING: 3.0 m
CORE STORAGE: 6722 LAKES RD DUNCAN

PURPOSE: TEST A STRONG CHARGEABILITY HIGH/WEAK RESISTIVITY AND THE STRATIGRAPHY ABOVE A PY-CPY STRINGER ZONE

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
0.00	-	-45° 0'	ACID	OK		-	-	-	-	-	
30.48	-	-45° 0'	ACID	OK		-	-	-	-	-	
64.01	-	-45° 0'	ACID	OK		-	-	-	-	-	
88.39	-	-46° 0'	ACID	OK		-	-	-	-	-	
128.02	-	-45° 0'	ACID	OK		-	-	-	-	-	
160.32	-	-46° 0'	ACID	OK		-	-	-	-	-	
182.88	-	-46° 0'	ACID	OK		-	-	-	-	-	
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LOGGED BY: M.J. GRAY

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
0.00 TO 7.32	CASING					
7.32 TO 35.95	AND. TUFF & CX TUFF	Colour - m-dk green Grain size - vf-f matrix; f-m cx Weakly foliated massive - crudely layered and. cx tuff & fine and. tuff.		- variable w-s chl - tr-m sel ep - vw calc +/- qtz veins	1-5% py f-m grained dissem. + minor stringers ave 2-3% py	Note f-ultrafine tuffs have w-m fol'n developed
		7.32-9.95m: f and. cx tuff 15--20% <1mm fp phenos		- w chl - tr-w sel ep	1-3% fg diss py	V. blocky, with lim/Mn fracture coatings locally sheared
		9.95-11.28m: f. and. tuff-minor f cx tuff, m-dk green.		- w-m chl - w calc +/- qtz veins	2-3% py as fg diss <1% cpy loc as "blebs" in qtz-calc vein.	
		11.28-19.71m: and. cx tuff 10-30% fp phenos <1-2mm ave 1mm. Cx rich layers crudely defined in contrast with minor ash layers. fol'n 35-50 layering ?	 50 45	- variable w-m sel ep of fp - w-m chl i.e.)11.28-13.50 w chl 13.50-18.00 w-m chl 18.00-19.71 w chl	1-5% py ave 2-3% py 11.28-16.20m: 1-2% diss py 16.20-17.20m: 2-3% diss py 17.20-18.00m: 3-5% d, str py 18.00-19.71m: 2-3% diss py Note at 18.82 3 x 3mm thick qtz-py str c/a 50	Litho: BCD #6376 13.00-16.00m Apparent layering poss. a product of ep altn.
		19.71-20.56m: f. and. tuff, massive, w fol'n		- w/w-m chl - w calc +/- qtz 1-2mm thick veins	2-5% py as diss & 1-2mm thick qtz-py str. i.e.) 19.90-2mm c/a 60 20.00-2mm c/a 55 20.10-1mm c/a 55 20.32-1mm c/a 55	
		20.56-21.61m: f. and. cx tuff 10-20% <1-1mm fp phenos		- w chl - tr sel ep - w calc +/- qtz veins	2-3% diss py	
		21.61-23.16m: f. and. tuff fol'n (approx)	 45	- m/m-w chl - w calc +/- qtz vwm thick veins	2-5% fg diss, str py i.e.) 21.64; 1mm, c/a 30 22.11; 1mm, c/a 45 23.16; 1mm, c/a 35	
		23.16-24.25m: f. and. cx tuff, massive		- m-w chl - vw calc	2-3% py as fg dissem	
		24.25-24.77m: f. and. tuff/f. cx tuff fol'n (30-40)	 35	w-m chl	2-5% py as diss + 1-2mm qtz-py strs i.e.) 24.57m - 2mm c/a 35-40	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		24.77-26.10m: fine and. cx tuff, med green 20-25% fp, <1mm		- m-s chl - vw sel ep - loc 1cm thick qtz veins	2-3% diss + blebby py fg	
		26.10-34.45m: f. and. ash tuff, m-dk green (note sheared section at 28.35-28.65), m green. Massive locally poorly laminated vf tuff fol'n (10-45) layering?	 25 40	- variable m-s chl ie) 26.10-26.82, m/m-s chl 26.82-32.0, s/m-s chl 32.00-32.50; m chl 32.50-34.45; s-m chl - loc w-tr sel ep - w bleached	3-5% py diss blebs + str locally 15-20% py in str. Locally see blebs of cpy. Str are typically qtz-py+/-cpy veins with diss py or patchy py i.e.) 29.78; 1-2mm qtz-py c/a 10 31.04; 1mm py-qtz c/a 45 31.75; 10mm qtz-ep-py c/a 20-50 33.72; 2mm py-cpy-qtz c/a 30-35 33.79; 2-4mm py-qtz-cpy-ep c/a 45 34.15; 5-6mm qtz-py-cpy c/a 60	Litho: BCD #6377 29.00-32.00m Blocky ground throughout interval. Note dk green-blk chl in sheared sections. Note py blebs oval shape 2-5mm long. Assay BCD #6358 31.62-31.75m; .15% py, .25% Cu Assay BCD #6359 33.58-33.83m; 8% py, .25% Cu
		34.45-35.51m: dk green and. cx tuff, w fol'n, 5-25% fp phenos <1-1mm fol'n	 20	- s/m-s chl - tr-w ep (sel) - tr patchy ep (1%)	2-5% py as diss, blebs + loc str. Tr cpy ie) 35.16; 2mm qtz-py c/a 30 35.50; 3mm qtz-py c/a 80 34.95; 3mm qtz-py-ep-cpy (.5%) irreg. vein.	Litho: BCD #6378 32.00-35.00m
		35.51-35.95m: f. and. tuff w-m foliated layering ?	 20	- m-s chl	5-8% diss py	
35.95 TO 37.13	DAC-RHYODAC F. QTZ EYE-FP CX TUFF	Colour - m-lt grey with green tinge Grain size - vf matix; f cx Weakly foliated, massive - possibly crudely layered qtz-fp phyric f cx tuff. 5-10% <1-1mm subang. qtz eyes 5-15% <1mm fp phenos bottom ctc fol'n 34-45	 40 45	- m-w ser - w sel ep toward end of interval +/- local silicfn(?) (36.55-37.00m)	3-8% diss fg py	- dac "grades" to dac-and as noted by colour change, loss of qtz eyes and first sign of ep altn. - poss bx 36.55-37.00m Litho: BCD #6379 36.00-37.00m
37.13 TO 51.00	AND. CX TUFF/F TUFFS	Colour - m-dk green loc pale green Grain size - vf matrix; f-m cx Vw-w foliated massive-poorly layered and. cx tuff.		- variable w-s chl - w-m sel ep, w-m patchy ep (15%)	2-10% py mainly as disseм, also as narrow stringers.	
		37.13-42.83m: f and. cx tuff with minor and. tuff poorly layered. fol'n 30-40 layering ? ?	 40 70	- m/m-s chl - w-m sel ep - w <10% patchy ep (up to 10 x 10cm balls)	2-5% py ave, loc 5-10% py as diss + minor str ie) 37.85; 4mm qtz-py c/a 70 38.25; 2mm, py-qtz c/a 45	
		42.83-51.00m: and. f. tuff + f. cx tuff. w-m foliated, locally poorly laminated. Note fp-rich "beds" 5-25% fp 2-40cm thick accentuated by sauszn.		- variable w-s chl ie) 42.83-44.60; m-s chl 44.60-49.00; m-w chl 49.00-49.40; m-s chl	2-8% py as diss + loc str +/- qtz +/- tr cpy ie) 42.83-44.20: 2-3% py 44.20-47.55: 5% py, d + str	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
				49.40-51.00; m-w chl - local vw patchy ep (<5%, 1cm size) ie) 42.83-44.20 - w-vw sel ep throughout - 2 5-15mm qtz veins	47.55-49.40: 5-8% py 49.40-51.00: 3-5% py, tr cpy stringers are qtz-py +/- cpy +/- chl ie 46.65; 4mm, qtz + py c/a 10 46.85: 4mm, qtz+chl+py c/a 10 47.70: 1-2mm, py c/a 45	
51.00 TO 54.82	AND F. TUFF STRINGER ZONE	*Colour - med-lt grey/green to m/dk green* Grain size - vf-f Weakly foliated, massive f and tuffs + minor cx tuff bottom ctc 45-50	50	- variable w-s chl +/- ser - w qtz veins	3-15% py as diss + str	Defined as py +/- cpy stringer zone due to increase in density of qtz-py veins + increase in sulphide content overall, although chl altn not as strong in this interval as elsewhere in hole.
		51.0-53.42m: and-dac f cx tuff/tuff, m-lt green-grey. Becomes darker green toward end of interval fol'n	45	-m-w chl +/- ser - weakly bleached (?)	3-5% py fg mainly as stringers (qtz-chl-py +/- cpy) ie) 51.00; 1mm qtz-py, c/a - 51.60; 3mm py-qtz, c/a 50 51.70; 3mm py-qtz c/a 45	
		53.43-54.82m: m-s foliated/sheared and. tuff. bottom ctc (shear)	55	- m chlz +/- ser - w-m qtz-py +/- cpy veins, grey-white 2mm-10cm thick	3-15% py f-m gained py 3-5% as dissem throughout, locally 8-15% py with qtz +/- cpy (<1%) as str ie) 53.70-53.85m;10cm,qtz-py-cpy c/a 65 54.00-54.10m; 10cm qtz-py-cpy bx c/a 70	Bottom ctc is sheared, last 10-15cm pseudogouge Geochem: BCD #6360 53.70-54.30 Litho: BCD #6380 51.00-54.00
54.82 TO 58.90	RHYODAC F. QTZ EYE CX TUFF (POSS. FLOW?)	*Colour - lt-med grey-green* Grain size - vf-aph matrix; f cx Vw-weakly foliated, massive qtz-fp phyric f. cx tuff (or poss. flow?) fol'n (approx) bottom ctc (sharp) 5-8% <1-1mm round qtz eyes with minor variations in content (%) throughout. 3-5% <1mm fp phenos	45 40	vw ser	3-5% fg diss py throughout	Litho: BCD #6381 54.90-58.60
58.90 TO 65.55	AND. F-M TUFF +/- F. CX TUFF	Colour - m-dk green Grain size - f-m Weakly foliated, rel massive (homogeneous) section of and. ashes + f. cx tuffs fol'n (40-55)	50	- w-s chl, variable ie) 58.90-60.20; m-w chl 60.20-61.40; m-s chl 61.40-65.55; w/w-m chl - tr-w sel ep (locally 61.00-63.55m) - vw qtz 2mm-2cm veins	2-8% py as fg dissem, blebs, and minor stringers cpy <1% as dissem + blebs throughout. ie) 58.90-61.00 5-8% py, tr cpy blebs, d, minor str c/a 50 ie) 61.00-63.,60; 2-5% py, tr cpy mainl as dissem, local str 2cm at 62.80 qtz-py c/a 80; 63.60-64.20; 5-8% diss py. Note 4mm py-qtz-chl str c/a 45 64.20-65.55; 2-3% diss py	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
65.55 TO 72.00	SILICEOUS	Colour - v lt grey-white		- tr ser	2-5% py as dissem + minor narrow lmm	Note bottom ctc is gradational/
72.00	EXHALITE(?) /SILICEOUS FELSIC TUFF (QTZ EYE)	Grain size - aph-vf matrix; fine cx Vw foliated locally, massive to crudely laminated siliceous exhalite(?) with loc fp <1-1mm up to 10% in individual bands (beds) loc qtz eye <<1mm approx. 3% layering ?? bottom ctc ?	 70- 70	- loc w-m sel epz of fp - m qtz veins 2-10mm pseudo stockwork, lt grey irreg. veins	str (c/a 65-80), loc <1% cpy (70.10m)	transitional to and. cx tuffs litho: BCD #6382 70.10-71.80m
72.00 TO 90.65	AND. CX TUFF & F. TUFF	Colour - dk-m green Grain size - vf-f matrix; f-m cx Vw-w foliated and. cx tuff & minor f. and. tuff. Crude layering poss defined by fp cx rich beds(?) top ctc (approx)	 60	- variable vw-s chl - variable tr-s sel epz of fp cx - loc vw-m patchy ep - loc w qtz veins	Ranges 2-8% f-mg py, & traces of cpy as diss, blebs and minor str.	
		72.00-78.25m: dk green and. cx tuff, with minor f. and. tuff layers (<20cm) fp <1-<2mm, 5-20%, note variable fp pheno content in crudely defined beds, and are accentuated by altn. fol'n (40-60) layering ? ?	 45 50	- vw-w chlz throughout, loc w-m chl in f. tuff - w-m sel epz of fp loc s over narrow (20cm) sections. -w qtz +/- py veins as irreg veins - loc vw-w patchy ep 1 x 1cm balls (74.55-74.80) <5%	3-8% py, ave 5% py mainly as diss, also with qtz veins +/- <1% cpy blebs ie) 74.95, 1cm, chl+py+/-qtz, c/a 35 75.25; 2cm, chl+py, c/a 45 75.35; 2 cm, qtz-chl-py-cpy (2%) c/a 20-25	Note poss epz fp phyric 2 x 5 cm frag? Note chl in strs is blk. Geochem: BCD #6361 75.33-75.48m
		78.35-79.40m: f. and. tuff, minor fp phenos (in layers?)		- w chl - t-vw ep - w-m qtz veins ave 5mm thick	3-5% diss py, loc qtz-chl-py str 1cm, c/a 45	
		79.40-83.55m: and. cx tuff with minor f. tuff bands. Vw fol'n		- w chl overall - loc w patchy ep 81.40-82.40 aprox. 5%, up to 5 x 5cm ep-qtz balls - s-m se ep throughout - loc w-m & m-s 3mm thick qtz veins (m-s at 79.80-80.10)	1-5% py mainly as fg diss + 1-2mm blebs loc m str + tr cpy ie) 79.40-80.20: 3-5% d py 80.20-82.40: 1-3% d + blebby py 82.40-83.55: 3-5% d + bleb + str (qtz-py c/a 45)	
		83.55-84.90m: vw fol and. f. tuff with minor f. cx tuff layers. bottom ctc with cx tuff approx.	 80	- m/m-s chl - vw-w ep	5-8% py as f-g grained dissem + coarse blebs tr cpy diss locally	
		84.90-86.50m: vw foliated "bed" of and fp cx tuff 15-20% fp <1-2mm ave 1mm bottom layer ctc ?	 75	- vw-w chl - s sel epz of fp - w-m patchy ep 10% up to 8 x 8 cm balls	2-3% diss py, minor irreg blebs of cpy <.5% over 30cm	cx tuff rapidly grades to f. tuff/f cx tuff

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
				- loc irreg 1-10mm qtz +/- calc veins		
		86.50-89.90m: interlayered f. and +/- and-dac tuff & f cx tuff & minor t c lapilli frags		- m-s chl +/- ser - vw-w sel ep	3-8% py, ave 3-5% f-m grained py, also blebs and diss py in qtz veins (str)	Litho BCD #6383 86.50-89.50m
		fol'n	60	- w-m 2mm-5cm qtz veins, locally	c/a 55	Note poss cx tuff frags in f. and. tuff
		layering ? 40-60	55	boundined & broken up along the foliation		
		Interlayered cx tuff layers ave 3-4cm thick. At 87.90-88.40m: poss lapilli frags (5%) 2-4mm felsic? in narrow bands, note pseudo qtz eyes in this section developed due to boudinage of qtz veins				
		89.90-90.34m: and. cx tuff "bed", 10-20% fp <1-<2mm		- w chl - m-s sel ep	2% diss fg py	
		layering ? 40-45	45			
		90.34-90.65m: f. and cx tuff 5-10% <1mm fp		- w-m chl - vw ep - sel - w-m qtz veins	5-8% py as diss + blebs, also 1 str at lower ctc qtz-chl-py 5mm, c/a 50, discont.	
90.65 TO 91.00	DAC/DAC-AND F TUFF	Colour - lt-m grey Grain size - f-vf w/w-m foliated dac tuff with 2-3% <1mm qtz eyes(?)		- w serz, tr chl - large milky wh. qtz vein at c/a 60 90.80-90.95m	3-5% diss py	
		fol'n	55			
91.00 TO 113.40	AND. TUFF & AND. CX TUFF	Colour m-dk green Grain size - fine-med. W-m-s foliated, crudely layered/interlayered and. tuff & cx tuffs.		- variable vw-s chl - variable vw-s ep - loc qtz veins		
		fol'n	65			
		91.00-93.70m: f and. tuff with minor 2-4cm cx tuff layers		- w chl, but s adjacent to qtz-py +/- cpy stringers	3-12% py as diss + stringers, ave 5% diss py. Stringers at 91.10; 25mm qtz-py-chl, c/a 80 91.15; 15mm qtz-py-chl, c/a 80 91.60; 12cm qtz-py-ep-chl, c/a 40 93.10; 1cm py-chl, c/a 60 93.40; 25cm qtz-py,chl-ep, c/a 45	Geochem: BCD #6362 91.75-91.95m
		93.70-94.20m: and. cx. tuff "bed" 10-20% fp phenos <1-2mm		- vw chl - m-s sel ep - tr patchy ep	3-5% py as f-m grains + blebs dissem.	
		94.20-94.75m: f. and. tuff & minor f. cx tuff		- m-s chl	5-8% f-c grained diss subhedral grains	
		fol'n	55	- w bleached		

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		94.75-97.40m: and. cx tuff with minor f. tuff bands. Variable 5-20% <1-2mm fp		- vw-w chl - s sel ep	2-5% diss py	
		layering ?	55	- loc m patchy (20%) ep at 96.90-97.20m		
		97.40-98.30m: and. f. cx tuff 5% <1mm fp phenos. Locally sheared		- vw chl - tr-w sel ep	5-8% diss py	
		98.30-100.40m: and. cx tuff sim to above. Vw foliated		- vw chl - w-m loc s sel ep	2-5% diss fg py	
		100.40-103.25m: and. coarse tuff/f. cx tuff, vw foliated with minor cx tuff bands (5cm)		- w-m chl, loc m-s chl over 50 cm - t-w sel ep, loc m-s ep in cx tuff beds/bands - variable w-s qtz veins 1-3mm	5-8% fg py as blebs + diss + loc py-chl +/- qtz str ie) 101.50, 2mm chl-py, c/a 40	
		103.25-103.75m: vw foliated f. and. cx charged tuff "bed" 20-30% 1mm fp cx, 5% mafic cx? poss diorite ??? layering ? ctc?	 85	- vw chl - w sel ep	2-3% diss py	
		103.75-105.75m: vw foliated and. f. cx tuff, minor cx tuff		- w chl +/- ser - w-m sel ep, loc s.	3-8% diss py	
		105.75-109.10m: w-m fol f. and ash tuff, with minor f. cx tuff fol'n 55-60	 60	- w/w-m chl loc s chl - loc vw-w sel ep - loc w-m qtz veins 1-10mm thick +/- py chl +/- mag	5-8% fg diss py, loc str 1mm c/a 60	Note magnetite in qtz vein
		109.10-109.90m: and. cx tuff sim to above cx tuffs		- vw-w chl - m sel ep	2-3% fg diss py	
		109.90-113.40m: w fol., loc shear f. and. cx tuff & f. tuffs		- w-m chl - tr-w ep	5-8% py as fg-mg diss + loc str c/a 35	litho: BCD #6384 110.00-113.00m
113.40 TO 120.50	FAULT ZONE (IN AND. TUFFS + CX TUFFS)	Colour - m-lt green Grain size - fine Fault zone in and. tuff/cx tuffs, includes narrow sections of gouge, v. blocky fractured core, and s. sheared tuff. shears 35-65 internal shear 55-60 bottom ctc shear Note internal shear fault planes ie)119.20 mud-shear 3mm. 113.40-119.20m: F. and. tuff/ f cx tuff, bleached & sheared	 65 60 45	- variable w-m chl +/- ser - vw-w ep loc - locally m bleached sections - w-m qtz 3mm-3cm veins	2-8% py as dissem + seams/stringers py content 5-8% proximal to qtz veins & strongly sheared/gouge sections.	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		119.20-120.50m: and. cx tuff 20% 1mm-<2mm fp cx		- m-s sel ep - w chl		
120.50 TO 122.40	AND. F. TUFF & F. CX TUFF	Colour - m. green-grey Grain size - vf matrix; fine cx Massive-weakly foliated and. tuffs & minor interlayered f. cx tuff layering based on f. cx tuff layers bottom ctc rel sharp layering?	 55 55	- w chl - vw-w (<2-5%) 3 x 3 cm patchy ep - vw sel ep loc. - m-s calc flood near (20cm) bottom ctc - w bleached	3-8% py as diss + blebs, py distinctly assoc. & ep patchy alteration	Note ep balls are ep-qtz-py and round.
122.40 TO 123.60	DIORITE FP PORPH DYKE	Colour - med-grass green & dk green + white Grain size - fine gm; f-m phenos Massive-strongly sheared fp porph diorite bottom ctc, sharp, graphitic	 75	- vw chl - m-I calc flood	tr-3% diss py	5% diss dk purple hem grains
		122.40-123.00m: med green fp (5%, 1-2mm) porph diorite		- m calc flood - vw chl/ep	tr py	Note 5cm chilled margin
		123.00-123.60m: s sheared diorite pseudo-bx shear?	30	- S-I calc flood - w chl/ep - v calc + qtz veins	2-3% dis py	
123.60 TO 124.90	AND. F. CX TUFF	Colour - m green-grey Grain size - vf-f matrix; fine cx Vw foliated, poss crudely layered (?), weakly bleached. bottom ctc fol'n (approx)	 75 75	- vw chl - vw-w sel ep - diss qtz grains poss mottled sel silicifn?	3-5% diss + blebby f-mg py	
124.90 TO 140.15	FP PORPH DIORITE & SHEARED DIORITE	Colour - med grass green + white & dk green + wh. Grain size - fine gm; f-c phenos Massive-intensely sheared fp porph diorite. Fp phenos are locally glomerophyric, ave 10%, 2-4mm, subhedral-euh., pale green colour. Approx. 25% fp <1mm in gm. Sheared diorite is f.g. and flooded with irreg calc indistinct veins. "Pseudobx" texture 124.90-125.00m: chilled margin, w bleached 125.00-130.10m: Fp porph diorite. Note hem only up to 126.00m bottom ctc	 30	- vw chl - vw-w ep sel on phenos + as wispy str - variable M-I calc veins/floods	nvs-2% py (in sheared diorite)	1-5% diss hem throughout & as reddish frac coatings of fp porph diorite. Litho: BCD #6385 126.00-128.00m

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		130.10-131.60m: sheared diorite shear 20-30	30	I calc flood pseudo-bx		
		131.60-132.20m: qtz veins with intervein sheared diorite vein	80	qtz vein	Note <1% cpy as large patches/blebs	
		132.20-137.80m: sheared diorite/pseudobx shear	30	I calc flood		
		137.80-138.20m: fp porph diorite top ctc	35			
		138.20-138.60m: F.g. diorite lt. grass green dyke?			2-3% py along fractures	
		138.60-139.70m: Fp porph diorite bottom ctc transitional to sheared diorite. bottom ctc (approx)	60			Hem frac coatings this section
		139.70-140.15m: sheared diorite or poss sheared and. tuff(?)		S-I calc flood	3% diss py	
140.15 TO 143.44	AND. CX TUFF & F. TUFFS	Colour - m-dk green Grain vf-f matrix; f-c cx Vw-w foliated, massive locally crudely layered and cx tuff, f. tuff & f. cx tuffs. Sim to above andesites bottom ctc top ctc ? fol'n (approx)	40 40	- vw-w chl nil-sel ep local w-patchy ep ie)143.00-143.44	5-8% py as dis, locally as str & blebs ie) 141.75; 20mm, 50% py, 2% cpy 48% chl, c/a 40 141.35 4mm, py-chl+/-py, c/a 10	Poss. and-dac locally
143.44 TO 145.80	DIORITE F. GRAINED	Colour - m green Grain size - fine Equigranular, weakly sheared diorite. Has calcite flooded/dissem throughout bottom ctc	20	- tr chl - m-s calc veins & diss throughout	tr-2% diss py, also note ep-qtz-py veinlet (2mm) at 145.0m	
145.80 TO 168.08	AND. CX TUFF & FINE TUFFS	Colour - m-dk green+/-grey Grain size - vf-f matrix; f-c cx Vw-w foliated, massive-crudely layered and. cx tuff & f. tuff sim to above. fol'n (35-70) 145.80-148.40m: f-m and. cx tuffs, massive	45 45	- tr-m chl - nil-s sel ep loc silicified(?) - loc vw-w (2-5% pat ep, + assoc bleaching - tr-vw chl - w sep ep	1-8% py as dissm, locally as str + blebs variable tr-5% diss py ave 2-3% py	 Note mottled appearance poss locally

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
				- loc vw patchy ep		silicified
		148.40-149.25m: f. and tuff, w foliated	70	- w chl	3% diss f.g. py	
		149.25-152.75m: fine and-dac cx tuff-f. tuff. Weakly foliated 5-15% <1mm fp phenos fol'n (45-60)	60	- vw-w chl - vw-w sel ep - loc vw patchy ep up to 2 x 2 cm balls - loc w 2cm qtz-ep +/- py veins	3-8% py as f-mg dissn ave 3-5%	Litho BCD #6386 149.50-152.50m
		152.75-153.25m: F. tuff +/- F. cx tuff, w foliated subtle division		- t-w chl - t-vw sel ep - loc qtz-py+/- ep veins (3cm)	8% diss f-mg py also py as blebs with qtz veins	
		153.25-160.87m: Vw foliated F. cx tuff 10-15% <1mm fp phenos. Rel homogeneous looking. fol'n	45	- vw-w chl - vw-loc mod sel ep - loc m patchy ep up to 4 x4 cm balls poss replace frags(?) ie)155.68-155.08m 158.00-159.20m	2-8% diss f-m g py ave 3-5%. Local blebby py.	
		160.87-162.70m: and f. cx tuff, vw foliated, sim to previous f. cx tuffs. 10-20% <1mm fp phenos fol'n (45-30)	45	- w-vw chl - w sel ep - w patchy ep (5-10%), round <1 x 1 to 4 x 4 cm ep-qtz-py balls	3-5% fg py as diss & as blebs within ep balls	
		162.70-164.50m: F. and tuff interlayered with F. cx tuff. Vw foliated, poorly laminated/layered. layering	75	- vw-w chl - vw sel ep - w patchy (10%) ep	2-5% py as fg diss up to 1x3cm lenses/ balls appear controlled somewhat by layering	Note local crenulation fabric
		164.50-165.20m: Lt-dk green and. tuff with 15% lapilli size subang.-round and. bleached fragments Poss. a tectonic bx. Matrix is f. tuff & f. cx tuff. Note crude layering. Vw foliated. Layering ?	70	- w-m chl - w-m sel ep - w-m patchy (15-20%) ep ave 1 x 1cm balls	5-15% py as blebs or fragments(?) <1x 1cm, alos poss. as sheared stringers	Note py conc. in layers? or poss. sheared out stringers.
		165.20-168.08m: Heterogeneous looking section of f-m and. cx tuffs with minor f. and. tuff. top ctc/layering	60	- w/w-m chl - w-m sel ep - local vw-w patchy (5%) up to 2 x 5cm balls	3-8% py as f-mg dissem + stringer. Loc tr cpy ie) 165.20-166.42; 3-5% diss py 166.42-167.20; 5% py, 8mm py-qtz-ep str, c/a 45 167.20-168.08; 9% py as diss + str; 3mm discon py-cpy str c/a 15	Note blk chl as envelopes on py +/- cpy stringers Note possible grading at 165.40 vf cx tuff. Fines up hole.

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
168.08 TO 173.20	DACITE-RHYODAC TUFF	Colour - lt grey Grain size - vf-f matrix; fine cx Vw foliated, massive fine dac-rhyodac ash tuff, aphyric-loc 2% qtz <1mm eyes. Also locally 2-5% apparent fp, conspicuous due to ep alteration top ctc ? bottom ctc fol'n ?	 40 50	- tr serz - silicified throughout(?) Note mottled-sugary look, also 2-3mm vague qtz veinlets m throughout. - locally w sel ep - w bleached	3-8% py, ave 5-8% as fg diss py & str note str at 168.20; 1mm, py, c/a 20 169.40; 1mm, discon py, c/a 40-70 170.20; 3cm, py-qtz-ep c/a 75 172.70; 1mm, py, c/a 70 172.90; 2mm, py, c/a 60	Litho: BCD #6387 169.00-172.00
173.20 TO 187.00	AND F. TUFF MINOR CX TUFF	Colour - m-dk green Grain size - vf matrix; f loc m cx Vw-m foliated, poorly layered and. tuff & minor cx tuff. top ctc & layering	 50	- vw-s chl - tr-w sel ep - vw-loc strong patchy ep - loc m qtz veins assoc with ep altn.	3-10% py as str, diss & locally as blebs ave 5-8% py	
		173.20-175.00m: f and. tuff, poorly laminated locally siliceous ? (174.35m) Note siliceous tuff/chert layer at 174.25-174.35m Poss layering 65 layering 50-60	 60	- w-m chlz - tr sel ep - loc vw patchy (<5%) 1x1cm balls - w-m qtz +/- py veins 1-5mm thick	5-8% py as str +/- qtz, and f.g. diss. str typically discont - lenses crudely connected c/ 70-80, 1-5mm thickness +/- qtz at 173.50, 173.60, 174.45, 174.50, 174.55, 174.60	Note siliceous tuff 174.25-174.35 approx. 10cm litho: BCD #6390 174.25-174.35 5-8% py
		175.00-175.15m: and. cx tuff bed 15-20% <1-2mm fp phenos.		- w ep - tr chl	5-8% f.g. diss py	
		175.15-175.80m: f. and. tuff, minor f. cx tuff		- w chl - tr sel ep - loc vw patchy ep	5-8% f.g. diss py	
		175.80-176.20m: and. cx tuff bed(?) sim to above fol'n	 30	- vw chl - vw-w ep	8-10% f-mg diss py, minor blebs	
		176.20-179.35m: and. f. cx tuff/f tuff interlayered beds 3-30cm (?) layering ?	 80	- vw-w chl - vw-w sel ep - loc ep-qtz +/- py veins 176.65-176.90	5-8% py f-mg mainly as dissem. also as blebs 2x2mm & poss 1 str, 90 c/a, 3mm discon lenses.	
		179.35-182.70m: f. and. tuff, minor f. cx tuff. Locally mod laminated. Poss. and-dac locally fol'n layering ?	 70 60	- vw-w chl +/- ser - v-m loc strong qtz veins, irreg 3mm-5cm thick milky wh-lt grey mainly parallel fol'n	2-12% py, ave 5-8% py as dissem + str ie) 179.70; 10cm, qtz-py-ep, c/a 80 181.40; 5mm, qtz-py, c/a 20 182.15; 5cm, qtz-chl-py, c/a E 182.30; 3cm, qtz-chl-py, c/a 60 182.45; 3cm, qtz-py-chl, c/a 80	Litho: BCD #6388 182.00-185.00
		182.70-186.00m: F. cx tuff/ f. and. tuff, rel homogeneous, locally untrafine tuffs fol'n	 70	- vw-w chl, loc m-s at 185.50-185.80 - tr ep - w qtz veins 5mm-3cm with py, note fg blackish, silled? py. c/a 40-90	3-8% py, ave 5-8% diss py, loc fg str py/ blebby py. Note str at 184.90 c/a 45 185.10 c/a 40, 185.40 c/a 80	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		186.00-186.50m: minor fault bx? has gouge in centre of poss. fault (1cm)		- w-vw chl/ser - s bleached	3-8% py diss throughout matrix of bx + as irreg wispy fg str with f-mg py diss throughout vfg blkish looking py.	Fragments appear to have been rotated as suggested by conc of suba-subr frags proximal to gouge.
		gouge	45	- loc silicified ?		
		Note 25% milled-up suba-subr fragments, fragments 2mm-3cm, ave 3-8mm. Felsic looking frags poss qtz or bleached and(?). Matrix is siliceous, qtz (?)				
		186.50-187.00m: and-dac f tuff, w-m foliated		- vw-w chl +/- ser	5-8% py fg disseм	
		fol'n	65			
187.00 TO 193.85	DAC/RHYODAC TUFF-MOTTLED	Colour - lt-m grey with greenish tinge Grain size - fine -v fine Vw-w foliated, mod-poorly laminated(?) or apparently banded (veining). Dac-rhyodac f. tuff. Interval has banded looking & massive looking sections.		- tr-w ser/chl - semi-pervasive silicification, note mottled look & banded texture.	3-8% py diss, ave 3-5% py	Note distinct layering near top of interval
	E.O.H.	fol'n	60			
		bands (60-70)	70			
		187.00-191.30m: banded dac. f. tuff with 2% <1mm qtz eyes locally. Poss bands represent siliceous tuff.		- vw ser +/- chl - tr ep - s qtz(?) banded 1-4mm	3-8% py diss, loc str with qtz at 188.50 c/a 30 3cm.	
		191.30-193.85m: Massive, mottled looking m-lt grey dac-rhyodac f. tuff sim to above		- tr chl/ser - perv. silicfn(?)	3-5% py diss fg py + loc discont str (sheared)	Note poss 2-3% qtz eyes, but vague, tend to believe this is a silicified unit but poss dac-and composition.
		fol'n ?	65		ie 191.90, 3mm, py-qtz-chl, c/a 70	Litho BCD #6389 191.50-193.85m
		crude bands (60-70)	70			
193.85 TO 200.70						

Sample	From (m)	To (m)	Length (m)	SIO2 %	AL2O3 %	CAO %	MGO %	NA2O %	K2O %	FEO %	MNO %	TIO2 %	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	AS PPM	SB PPB	SR %	ZR %	TOTAL %
6376	13.00	16.00	3.00	55.84	16.76	4.03	7.08	2.56	0.73	9.82	0.52	0.64	.060	80	111	20	0.3	5	1	4	.02	.005	98.07
6377	29.00	32.00	3.00	55.13	19.12	1.09	6.69	4.96	1.02	8.71	0.46	0.63	.092	104	213	25	0.5	10	34	1	.02	.005	97.92
6358	31.62	31.75	0.13	50.27	12.63	5.50	5.07	2.09	.83	17.86	0.54	0.42	.077	272	127	4	1.1	10	20	21	.02	.005	95.28
6378	32.00	35.00	3.00	55.18	16.96	2.98	7.88	2.66	0.74	10.16	0.60	0.62	.070	427	191	16	0.9	5	29	5	.02	.005	97.86
6359	33.58	33.83	0.25	56.56	14.86	1.52	6.24	3.38	0.49	12.10	0.46	0.47	.052	1974	155	18	1.4	10	18	7	.02	.005	96.14
6379	36.00	37.00	1.00	70.94	14.67	1.00	1.99	2.25	2.94	3.65	0.13	0.32	.221	9	34	6	0.1	5	2	1	.02	.005	98.13
6380	51.00	54.00	3.00	58.09	16.38	3.43	5.94	3.08	1.20	8.38	0.29	0.97	.126	42	67	7	0.7	5	33	2	.02	.006	97.93
6360	53.70	54.30	0.60	57.99	13.02	1.16	4.77	1.14	1.95	15.26	0.20	0.44	.187	1054	63	11	1.4	20	17	15	.01	.005	96.12
6381	54.90	58.60	3.70	73.21	14.44	0.36	1.71	3.13	2.58	2.27	0.09	0.17	.115	25	23	3	0.1	5	4	1	.01	.005	98.08
6382	70.10	71.80	1.70	76.06	12.82	0.74	0.88	1.74	3.00	2.27	0.03	0.19	.366	12	6	4	0.2	5	2	1	.01	.005	98.11
6361	75.33	75.48	0.15	59.49	12.74	1.41	4.53	2.65	0.99	13.68	0.25	0.45	.087	1492	55	11	1.0	5	9	12	.01	.005	96.28
6383	86.50	89.50	3.00	57.65	16.78	1.92	6.62	2.82	1.35	9.60	0.26	0.63	.160	101	75	24	0.8	5	23	1	.02	.006	97.91
6362	91.75	91.95	0.20	75.29	4.27	1.83	1.67	0.08	0.42	12.90	0.12	0.17	.070	163	26	15	0.7	10	1	16	.01	.005	96.82
6384	110.00	113.00	3.00	57.67	16.57	1.69	6.12	3.36	1.07	10.51	0.32	0.62	.097	8	57	4	1.0	5	32	3	.02	.005	98.05
6385	125.00	128.00	3.00	48.83	15.62	10.99	6.05	1.20	0.01	12.70	0.30	1.86	.005	180	37	4	1.5	10	25	2	.04	.009	97.61
6386	149.50	152.50	3.00	61.94	16.27	2.40	4.21	4.06	1.14	7.09	0.25	0.51	.088	5	40	18	0.6	5	11	3	.02	.005	97.96
6387	169.00	172.00	3.00	70.36	14.78	0.75	1.65	5.67	0.97	3.52	0.08	0.32	.071	8	15	5	0.6	5	11	1	.02	.005	98.19
6390	174.25	174.35	0.10	71.06	13.22	0.85	2.36	3.50	1.44	5.01	0.09	0.30	.138	8	20	8	0.6	5	12	2	.02	.005	97.99
6388	182.00	185.00	3.00	57.27	16.74	1.47	6.66	4.23	0.45	10.11	0.29	0.65	.029	56	50	10	0.9	5	21	1	.10	.005	97.93
6389	191.50	193.85	2.35	70.29	14.24	1.13	2.51	5.89	0.38	3.25	0.08	0.34	.022	13	14	9	0.5	5	9	1	.02	.005	98.16

MINNOVA INC.

HOLE NUMBER: CM-3 — DRILL HOLE RECORD — IMPERIAL UNITS: — METRIC UNITS: X

PROJECT NAME: SIC
PROJECT NUMBER: 326
CLAIM NUMBER: COPPERMINT III
LOCATION: NTS 92B/13

PLOTTING COORDS GRID: IDEAL
NORTH: 4.00N
EAST: 1199.00W
ELEV: 407.00

ALTERNATE COORDS GRID: FIELD
NORTH: 0+ 4N
EAST: 11+99W
ELEV: 407.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 114.00m
START DEPTH: 0.00m
FINAL DEPTH: 114.00m

COLLAR GRID AZIMUTH: 210° 0' 0"
COLLAR ASTRNOMIC AZIMUTH: 210° 0' 0"

DATE STARTED: May 31, 1987
DATE COMPLETED: June 1, 1987
DATE LOGGED: 0, 0

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: F. BOISVENU
CASING: 9.1 m
CORE STORAGE: 6722 LAKES RD DUNCAN

PURPOSE: TO TEST MYRA FM. VOLCANIC STRATIGRAPHY S. OF TRENCH #1

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
30.48	-	-45°30'	ACID	ok		-	-	-	-	-	
60.96	-	-46°30'	ACID	ok		-	-	-	-	-	
91.44	-	-47° 0'	ACID	ok		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
0.00 TO 9.14	CASING					OVERBURDEN
TO 58.90						
TO 62.30						
TO 79.50						
9.14 TO 20.40	FAULT ZONE (RHYODAC QP FLOW (?) & minor MAFIC DYKES)	Beige and light medium green APH-F ax, fine-coarse cx Fault zone is a section of variably sheared rhyodac-mafic rocks, including sections of gouge and milled-up fault bx. shears/gouge (30-45) Rhyodac QP flow (?) or CX tuff has 3-10% qtz eyes 1-3mm across, locally FP phyric, also has 1-5% green-grey 1-2mm clots/cx Mafic, andesitic (?) sectons are sheared/faulted into rhyodac. Either cx tuffs or poss. dykes 10.90 - 13.8m rhyodac qp, 5% qtz eyes 13.8 - 14.0m Gouge with mafic dyke?, s. sheared margins 14.0 - 14.1m rhyodac QP, M sheared 14.1 - 15.8 fault gouge and strongly sheared/breccieated FP phyric and, tuffs, minor fine grained aph. mafic dykes, minor rhyodac bands gouge (30-45) 15.8 - 20.1 rhyodac Qfp flow (?), rel. massive, weakly foliated variably sheared shear (30-40) 2-5% qtz eyes 1-2 mm. FP phenos vague 1-5% (?) 1-2mm, also 1-5% 1-2mm green-grey cx/clots	 30 30 30	variable w-s ser. in felsics, m-s chl in mafics. clay developed in gouge sections. loc. M gashlike 1mm discon calc. veins + qtz veins M-S ser'z M qtz as 1mm str veins m-s ser hem-calc veins in gouge section - loc. clay-ser in gouge - m-s chl/ser throughout - m ser'z throughout - W-M calc +/- hem veinlets	NVS - 2% py trace py trace py 1-3% diss. very f.g. py	Note: hole collars in fault gouge Note: diss'ed 1-2mm grains of hem 1% to locally 5% Note: lower ctc area of fault subjective, based on loss of gouge sections and decrease in degree of shearing. Litho: BCD#3955 19.00 - 22.00m

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
20.10 TO 25.10	RHYODAC QFP FLOW (?) OR CX T	Beige to medium brown-grey Aph-gm/ax, f-m phenos Massive looking rel. homogeneous, vw foliated, locally sheared over narrow intervals. Qtz eye content varies 5% <1-2mm, to 24.0m, then 2-5% qtz eyes/ 3-8% FP phenos with 3% mafic clots to 25.1m, ~1-2% <1mm qtz eyes fol'n Section changes to FP-qtz phyric at ~24.0m, gradational?, suggesting that this unit is a CX tuff	55	- vw loc w. ser'z - w-m cal +/- qtz veins +/- hem.	2% v.f.g. diss. py	Note: at 21.0 - 21.3; 5-8% diss. hem grains 1-3mm poss replacement of mafic phenos.
25.10 TO 42.00	AND. CX T AND TUFFS, MINOR SILICEOUS TUFF	Med-pist. green +/- grey F ax, f-m cx fol'n (30-60) VW-m foliated, massive to loc. mod. layered, andesitic section of CX tuffs, F. tuffs and minor laminated siliceous tuffs. layering (40-60) 25.1 - 26.15m And. fp cx tuff (5-15%, 1-2 mm) with minor loc. lapilli 4 x 15 mm fragments in a fine andesitic ax top ctc 26.15 - 27.2m And-dac mod-poorly laminated T. M-LT green-grey 27.2 - 29.0m interlayered and cx tuff, f. tuff, range in thickness 1cm - 20cm of individual layers. Beds have up to 40% fp and down to 5% fp phenos 29.0 - 36.8m vw foliated m. green coarse and ash tuff, minor f.t. 36.8 - 39.9m And lapilli tuff/coarse ash with minor lapilli stone 38.0 - 38.4m 15% felsic lapilli fragments in lapillistone 5% lapilli fragments 2-10mm throughout	30 60 30	- W-s sel ep'z - w <1mm calc veins +/- hem. - VW - W/M chl'z - loc massive milky white qtz veins - vw chl - loc w-m sel ep W-M chl +/- ser Nil-M sel EP varies from "bed to bed" - W-S chl, ave m chl'z - W qtz +/- calc veins - W-m chl th-o - tr-w sel ep - w bleached - vw-w calc 1-2mm veins - vw-w chl - w loc m calc gash veins 2-3mm - loc mod silica-ep alt'n patches	Tr 3% py as diss & fractures Tr py Tr-1% py Note: py 1mm band at 26.9 parallel to layering - 1% py as FG discont. str and patches assoc with ep-qtz alt'n <1-1% diss fg py <1-1% py	Note: hem along fract and with some calc veins at - layering based on laminated ash beds and on cx-rich tuff beds Note: narrow gouge at 38.1m (3cm)

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		39.9 - 42.0m coarse ash andesite, dull m. green.		- vw chl - w-m 1mm calc vein irreg along frac.	<1-1% py	
42.00 TO 47.00	AND-DAC LAPILLI STONE	M-pale green Very fine mx, lap fragments Massive, vw foliated And-Dac lapillistone. Multilithic overall, but narrow sectons monolithic Mx 20-30% vf tuff fragments (lapilli) 70-80%, range 2mm - 35mm, ave. 6-8mm, include felsic (py-rich). Also aphyric andesite (bleached?) and fine qtz phyric rhodac fragments. Shapes are subrounded - drawn out. fol'n	35	- vw chl - w bleached	Tr 5% py, ave tr 2%, as diss. + wc v.f.g. blebs (or frags?) i.e. 43.6-44.6m 5% py as v.f.g. blebby (<1mm) diss in individual frags. up to 20% py v.f.g. diss. as clots/bleb in isolated fragments.	NOte: 1 bx frag at 44.90 is dac fqp crowded cx tuff Note monolithic lapillistone at 43.5-45.5 Litho: BCD #3965 43.5-55.5m
47.00 TO 59.10	AND TUFF -BX (POSS. AND-BSLT)	Dark-m green, loc pale green Fine mx, fragments, 10 cm - >50 cm VW-W foliated, rel massive looking and/and-bslt tuff - bx large blocks (10-750 cm) are set in a coarse ash/cx t mx. 15% blocks include: Px (5-8%, <1-3 mm) phyric (57.1-58.1m), also bleached andesitic frags fol'n (?)	50	- W & W-m chl'z th-o - W - loc S calc +/- hem veins and gashes <1-3mm - local 5-10mm qtz veins - W-m bleached, loc S fragments/blocks	tr <1% py	Poss. represents bx near or within myra-nitnat transition Locally very blocky core - with hem fracture coatings Litho: BCD#3956 47.0 - 50.0m
59.10 TO 60.70	AND. LAP TUFF, MINOR F TUFF	M-dk dull green - sl grey Fine mx, fragments - lapilli VW-W foliated, crudely layered andesite lapilli tuff. Includes minor And. F. tuff layers. Layering Mx supported, ~20% lapilli (range 2-20mm, aver 2-6mm) typically drawn out along the foliation. Frags include Dac-rhyodac (50%) ep'z And.(30%) and 20% cherty? Vague fragments.	30	- W/w-m chl +/- ser - W irreg calc 1-2mm veins - W sel ep'z of FP or FP rich fragments	Nvs - <1% py	Distinct lapilli T. "bed" in tuff-bx package
60.70 TO 70.10	AND-BSLT TUFF -BX (POSS A FLOW?) or PILLOW BRECCIA	Dark green and pist. green Mx-f, fragments BX VW foliated, massive, And-btlt t-bx or flow. Monolithic, frag. supported, And-bslt amgyd blocks range 10cm - 75cm though outlines of blocks not sharp. Outlines accentuated by EP alt'n Possibly pillow-breccia Possibly some fragments Px phyric(?) Bot CTC is rel. sharp, def. chilled		- VW chl - S-M ep'z of fragments with qtz as veins - W-M qtz as veins and amyg infillings +/-py +/-cpy - W-S calc +/- hem 2-4mm thick veinlets (S near dior CTC) - W-M bleached prox to ep-qtz altn	Tr py Tr cpy associated with amygd	Hem along some fract. coatings Note: at 68.2 amygd fragments with cpy infillings and chilled margin(?)

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		fol'n (40-70) bottom CTC 60-	50 75			
70.10 TO 78.70	DIORITE (IN FAULT ZONE(?))	Colour - m dull green + white Grain size - f-m Rel massive f-mg weakly fp porph. diorite, fg. diorite locally - weakly sheared Top ctc ? Bot ctc Fault ?	 60	- vw chl/ep - loc ep-qtz veins	NVS-tr py	Note hem fracture coatings on margins of diorite.
		70.1-70.7 VFG dior. chilled margin.		- vw chl/ep - w-m calc +/- qtz veinlets		5-10% vfg leucoxene dissem.
		70.7-74.6 F-mg weakly fp porph diorite				
		74.6-75.2 Fault, includes gouge & sheared/broken diorite.		- clay-chl in gouge - m calc +/- qtz veins	NVS	
		75.2-78.3 F-mg weakly fp porph diorite, w sheared denoted by streakly leucoxene grains.		- m-s calc +/- qtz veins - vw chl/ep throughout	NVS	
		78.3-78.7 Fg dior. chilled margin(?) in fault, minor gouge, broken-up zone. Fault c/a ? 30 gouge plane		- s calc +/- qtz veins - vw chl		Bot ctc hard to pin down as it is broken-up core/fault in fg diorite & tuff.
78.70 TO 91.00	AND-BSLT TUFF-BX (POSS IN FAULT?) minor DYKES (POSS FLOW?)	Colour - m-dk dull green Grain size - vf-f ax; frags <3cm-20cm Vw foliated, massive, and. t-bx similar to above, with minor dykes & faulted section.	65	- tr-w/m chlz ie) 78.0-82.0: w-m 82.0-83.0: tr chl 83.0-87.75: vw chl 87.75-91.0: tr chl/ser	NVS Local tr py at 84.4m	Poss in fault at 83.0-86.3m, v blocky with intermittent gouge planes & brecciated sections.
		78.7-83.1 And-bslt t-bx, frags epz 10-30cm, ax supported. bot ctc	 70	- w-loc s calc +/- ep +/- qtz <1-3mm veinlets -variable nil-s patchy ep-silica sel(?) alt'n ie) 80.8-82.68: w-m (15%) poss epz of round frags 82.68-85.3: nil 86.3-87.76: w patchy & vein type ep-silica		Note hem along frac. throughout most of interval Note and. or dior dyke at 83.1-85.4 Litho: BCD #3957 78.0-81.0m
		83.1-85.2 Fg diorite, S calc irreg veins at numerous orientations, lower ctc broken-up.				
		85.2-91.0 And-blst t-bx (?) with minor and cx-lapilli tuff				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		(bleached/silicified). Poss tectonic bx locally.		88.6-90.3: W ep-silica as irreg veins 90.3-91.0 S ep-silica veins, bx		
		Fault at 83.0-86.3m		- loc diss blebby hem		
		fol'n (30-70)	60			
		Fault 20 & 70				
		bot ctc	20			
		rel sharp				
91.00 TO 114.00	DIORITE	Colour - m dull green +/- white Grain size - f-m Massive, variably sheared nil-w, includes f-m grained equigranular, weakly fp porph, and vfg dyke phases.		- variable vw-m calc +/- qtz veins <1-3mm - vw chl/ep throughout	NVS-1%, loc 2% diss py	5-8% fg leucoxene grains. No pseudobx tex developed or calc floods.
		91.1-96.3 f-mg equigr. diorite, vw sheared. Top ctc fault with minor gouge.		vw loc w calc +/- qtz veins	NVS	8% <1mm diss streaked out leucoxene grains. Note blk chl fracture coatings.
		96.3-97.2 mg-weakly fp porph diorite (10% 1-2mm) weakly sheared & fractured.		W calc +/- qtz veinlets.		
		97.2-98.25 M. green vfg and dyke, massive, unfoliated.		Vw chl	tr py	
		98.25-102.4 mg-weakly fp porhp diorite.		- vw chl/ep - w calc +/- qtz veins		
		102.4-104.8 f-mg w-m sheared diorite.		- w-m calc +/- qtz veins	NVS	5-10% dissed streaked out leucoxene Note poss sheared and dyke included in this interval.
		shear	45			
		104.8-105.6 Chilled margin (?) of fp porph diorite Fg, grades into fp porph.		- vw chl/ep - w-m calc +/- qtz	tr py	
		105.6-114 Fp porph diorite 5-10% 2mm fp phenos. This section probably in a fault as slickenlines noted on pieces of core. Note qtz vein - massive at 113.1-113.4m		- vw chl/ep - loca ep-qtz +/- calc vein	Tr -1% py	Litho BCD # 107.0-110.0 Note rel blocky core, some pieces have slicken lines. Poss still in a fracture zone or fault at end of hole.

Sample	From (m)	To (m)	Length (m)	SIO2 %	AL2O3 %	CAO %	MGO %	NA2O %	K2O %	FEO %	MNO %	TIO2 %	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	AS PPM	SB PPB	SR %	ZR %	TOTAL %
3955	19.00	22.00	3.00	69.59	15.20	0.98	0.79	2.35	5.75	2.71	.08	.39	.102	16	22	4	0.2	5	2	1	.02	.009	97.96
3956	47.00	50.00	3.00	52.54	18.12	9.99	1.75	4.81	0.67	6.17	.19	.84	.027	83	24	11	1.2	5	1	2	.06	.010	95.19
3957	78.00	81.00	3.00	48.37	17.45	5.35	4.55	4.98	0.17	13.18	.30	1.64	.011	60	74	16	1.8	5	19	5	.03	.015	96.04

HOLE NUMBER: CM-4

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SIC
PROJECT NUMBER: 326
CLAIM NUMBER: COPPERMINT II
LOCATION: NTS 92B/13

PLOTTING COORDS GRID:
NORTH:
EAST:
ELEV:

ALTERNATE COORDS GRID: IDEAL
NORTH: 1+ ON
EAST: 6+ OW
ELEV: 217.00

COLLAR DIP: -50° 0' 0"
LENGTH OF THE HOLE: 94.40m
START DEPTH: 218.30m
FINAL DEPTH: 312.70m

COLLAR GRID AZIMUTH: 186° 0' 0"
COLLAR ASTRNOMIC AZIMUTH: 186° 0' 0"

DATE STARTED: June 2, 1987
DATE COMPLETED: June 4, 1987
DATE LOGGED: 0, 0

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: F. BOISVENU
CASING: LEFT IN/CAPPED
CORE STORAGE: 6722 LAKES ROAD, DUNCAN

PURPOSE: TO TEST ARGILLITE/CHERT PACKAGE AND ZN STRINGER MINERALIZ'N INTERSECTED IN HOLE 85-3

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
243.84	-	-48°30'	ACID	OK		-	-	-	-	-	
274.32	-	-50°30'	ACID	OK		-	-	-	-	-	
304.80	-	-49°30'	ACID	OK		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
218.30 TO 259.30	FELSIC TO INTER-MEDIATE FELDSPAR AND QTZ PHYRIC CRYSTAL TUFFS AND ASHES	Grey to dark greenish grey F-agr Generally weakly foliated throughout - distinct lack of bedding except where noted below feldspar and quartz crystal content variable 218.3 - 224.6 1-2% qtz crystals, 3-5% white fsp crystals 224.6 - 224.9 1% elongate (1-2 cm x 0.3 cm) greenish fragments with small qtz crystals = possible fiamme aligned at 30 degrees to C.A. 224.7 (bedding?) 30 224.6 - 228.4 quartz phyric bed - contacts indistinct 10% q's 228.4 - 254.8 5-10% q's; 3-5% fsp xls dark green colour obscure q's (hard to see) 235.3 (foliation) 50 242.1 (foliation) 30 254.8 - 259.3 crystal rich tuff.10-15% white fsp crystals - somewhat rounded and 10% q's (grey with the odd bluish grey one)		Weakly chloritic - gives rock greenish colour 223.4 - 223.75 hematite-carb-magnetite vein 228.4-254.8 fsp crystals are locally epidotized	Tr. diss. py 223.4 - 223.75 1-2% py associsted with vein	fault gouge at: 220.95 - 221.65 222.1 - 222.45 228.4 - 254.8 dark green colour - looks andesitic but have q's - check si02, ti02 (geochem)
259.30 TO 271.60	FELSIC VOLCANIC LASTIC	Light grey F-agr Matrix is f-agr and qtz-crystal rich - up to 30% q's. Throughout unit have 5-10% fragments. Fragments include: (1) crystal tuff as at 254.8 - 259.3 (2) very fine graind felsic ash fragments (3) argillite wispy fragments (start at 264.25) 266.2 (arg. fragments) 50 266.4 (arg. fragments) 35 Foliation in matrix is well defined but quite contorted over short core lengths		Matrix is pervasively weakly sericitic	None	
271.60 TO 272.35	CHERT BRECCIA /CHERT	Grey Fine grained 271.6 - 272.0 chert breccia - fragment supported				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		272.0 - 272.35 well-bedded chert 272.1	40	1-2% py - occurs as veinlets in cht bx and as wisps parallel to bedding in chert		
272.35 TO 272.70	GRAPHITIC ARGILLITE & CHERT	Black Fine grained Well-bedded, contacts sharp 272.35	35	1-2% carb. veins	1-2% py	
272.70 TO 274.80	FELSIC ASH	Light greenish grey Very fine grained Foliation well-defined but contorted Fsp-phyric fragment at contact with argillite (from 272.7 - 272.8) Ashy look 1-2% qtz eyes Trace- 1% very fine grained grey fragments (angular)		Pervasive intense sericite	None	
274.80 TO 289.95	ANDESITIC CRYSTAL TUFF AND ASH	Greenish grey with dark green ashy beds Fine agr. Massive, with well-bedded ashy layers. Trace silicified fragments, the odd quartz eye. 280.7 - 281.3 agr, dark green diorite 281.7 (bedding) 285.0 (bedding) 289.6 (bedding)	 30 30 40	Fsp. Xls epidotized, 1% qtz-carb veins	None	
289.95 TO 312.70	FELDSPAR PHYRIC DIORITE	Greenish grey Fine grained Massive. 10-20% feldspar crystals 303.1 - 304.4 Fine grained, weakly foliated zone. Phase of diorite? END OF HOLE		Generally unaltered 1% qtz-carb veins	None	

Sample	From (m)	To (m)	Length (m)	SIO2 %	AL2O3 %	CAO %	MGO %	NA2O %	K2O %	FEO %	MNO %	TIO2 %	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	AS PPM	SB PPB	SR %	ZR %	TOTAL %
BCD6391	230.40	233.50	3.10	66.26	15.75	2.62	1.56	3.28	4.04	3.78	0.12	0.39	0.088	12	32	5	0.2	5	1	1	0.03	0.006	97.93
BCD6392	264.00	267.00	3.00	69.87	14.77	1.68	0.98	2.52	4.78	2.77	0.07	0.26	0.108	19	47	6	0.8	5	3	1	0.02	0.005	97.84
BCD6356	271.60	272.35	0.75	74.74	13.18	0.87	0.8	2.41	3.31	2.42	0.04	0.17	0.106	38	118	15	0.2	5	35	1	0.01	0.005	98.05
BCD6357	272.35	272.80	0.45	73.3	10.78	4.43	0.7	1.53	2.64	3.25	0.09	0.23	0.070	40	93	6	0.7	15	601	4	0.01	0.005	97.05
BCD6393	276.10	279.20	3.10	49.55	19.99	8.87	4.39	4.01	0.55	9.02	0.25	0.98	0.031	26	52	10	1.0	5	17	2	0.05	0.007	97.7

HOLE NUMBER: CN-5

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SIC
PROJECT NUMBER: 326
CLAIM NUMBER: COPPERMINT 1
LOCATION: NTS 92B/13

PLOTTING COORDS GRID: CANAMERA
NORTH: 15.00N
EAST: 464.00W
ELEV: 195.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 0.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 147.80m
START DEPTH: 0.00m
FINAL DEPTH: 147.80m

COLLAR GRID AZIMUTH: 210° 0' 0"
COLLAR ASTRNOMIC AZIMUTH: 210° 0' 0"

DATE STARTED: June 4, 1987
DATE COMPLETED: June 6, 1987
DATE LOGGED: 0, 0

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: F. BOISVENU DRILLING
CASING: 16.5m
CORE STORAGE: 6722 LAKES RD. DUNCAN

PURPOSE: TEST CHERT/ARGILLITE (MINE) PACKAGE 100M W OF ZN STRINGERS INTERSECTED IN HOLE 85-3

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
47.55	-	-45° 0'	ACID	ok		-	-	-	-	-	
78.03	-	-45° 0'	ACID	ok		-	-	-	-	-	
91.44	-	-42°30'	ACID	ok		-	-	-	-	-	
121.92	-	-42° 0'	ACID	ok		-	-	-	-	-	
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LOGGED BY: M.J. GRAY

FROM - TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
0.00 TO 16.50	CASING/ OVERBURDEN					
16.50 TO 17.00	AND. F. CX TUFF	Colour - med. green Grain size - v.fine matrix Vw foliated, massive F. And. cx tuff. 10-15% <1-1mm fp phenos		-vw chl -w bleached -tr epidote	tr py	
17.00 TO 17.10	FAULT	Colour - lt. green Grain size - very fine Narrow Fault gouge/brecciated section. Fault	25	- clay-chl gouge	tr py	
17.10 TO 27.80	AND. COARSE TUFF /CX TUFF (MINOR F. TUFF)	Colour - M-dk green Grain size - very fine - coarse Vw foliated, massive and. coarse ash and cx tuff, locally note lapilli size fragments. Fol'n (30-60) Note poorly laminated F. andesitic ash at 22.5-22.8. Ash layers approx. 4mm thin with rel. sharp boundarys Layering 30-35	45 30	- vw-w chl - vw-loc. mod epidote - nil-m bleached, i.e.)m bleached/epz at 22.8-26.2	NVS-tr py	Mainly a coarse nondescript. ash with 5-10% >1-2mm fp phenos + broken phenos, ,5% 2-6mm bleached f.g. andesitic looking frags Litho BCD #3958 20.0-22.5m
27.80 TO 28.00	AND. DYKE (OR POSS. F. TUFF)	Colour - dk. green Grain size - aphanitic-very fine Mod foliated/sheared vfg and dyke(?). Note slickenlines on fol'n(?) planes. Top contact Bottom contact 50-55	40 50	- m chl	tr py	
28.00 TO 33.70	AND. COARSE ASH -CX TUFF (MINOR LAP FRAGS & LAMINATED F. ASH)	Colour - m-dk green, loc lt-med green Grain size - vfc matrix; f-c cx l frags Vw foliated rel massive and. coarse ash/cx tuff +/- lapilli fragments. Sim to above andesites. 28.0-29.6m: coarse ash/cx t. rel nondescript. 29.6-30.9m: m-c ash t. with 5% lapilli size frags (bleached/epz andesitic? 6-20mm) 30.9-31.8m: m-c and. t. and f. cx tuff		- vw chl - vw-m ep i.e.) m ep/bleached and. at 28-29.0, 29.6-30.5	nvs-tr py NVS	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		31.8-32.7m: f. ash tuff, rel homogeneous, w foliated, poorly laminated 32.7-33.7m: And.-dac f cx tuff, 2% <1mm qtz eyes, 5-10% <1mm fp phenos		- w-m chlz	tr py	
33.70 TO 40.70	FAULT ZONE	Colour - beige, white, green Grain size - vf-f matrix; f-cx >c frags Fault zone consists of blocky and gouge sections in qtz-eye cx tuffs, chloritic tuffs, and poss. mafic dykes. fault (20-40) 33.7-34.1m: fault gouge in above and. cx tuffs and start of rhyodac qtz eye cx tuffs. 34.1-34.8m: biege-sl green f qtz-eye cx tuff, 2-5% qtz eye <1mm. Includes loc sections of gouge-milled bx. 34.8-36.20m: mainly clay +/- chl +/- ser gouge of m-dk green and. dyke (?) or and. tuff top contact bottom contact 36.2-37.1m: Qtz veined bx-gouge section in altered fp(?) cx tuff. white-lt green bottom contact 35-40 37.1-38.3m: section of biege-brown rhyodac f ash/ qtz eye f. cx tuff, minor cherty or siliceous tuff bands (5cm), and coarse qfp crowded cx tuff. (50cm) 5-15% 1-2mm qtz eyes, 5-10% 1mm fp phenos. layering, approx. 38.3-38.6m: qtz vein massive, milky white. top contact 38.6-38.7m: rhyodac. qfp crowded cx tuff, sim to above. 38.7-38.0m: qtz vein white-grey, massive, parallel fol'n top contact bottom contact, sheared	 20 40 25 15 35 25 40 20 20	- vw chl/ser except in gouge sections where the altn is strong +/- clay. - s <1-2mm qtz veins - tr ser - w ser	nvs-tr py tr-loc 2% blebby py. 3% py as irreg 1mm fg str 1-3% py as fg diss. and blebs 1% diss py along fractures 5-8% fg py as str, irreg blebs of cpy approx. 5%	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		38.80-39.20m: rhyodac tuff/f. cx tuff sim to prev biege-brown tuffs. W-m foliated. End part of this section sheared and broken-up. bottom contact	 30	- w ser - w 5mm qtz veins	1% diss py overall, 1-5% py fg as str in qtz veins.	
		39.20-39.30m: lt grey-wh. aph chert/siliceous tuff with faint layering. layering 35-40 bottom contact	 35 ?	- s tensional <1mm calcite veins	tr-2% py vfg	
		39.3-39.7m: rhyodac qtp coarse crowded cx t. sim to above. Has sheared/gouge lower margin. bottom gouge 50-60	 50 60	- large qtz vein(?) boudined out in centre of interval - w serz	- 2% fg diss py	
		39.7-40.7m: gouge and broken-up zone of underlying and. lapilli tuff within fault zone. gouge 40-0	 10 40 0	- s clay +/- chl +/- ser	1-2% diss fg py	
40.70 TO 43.80	AND. LAPILLI TUFF/CX T. MINOR F. TUFF & F. CX T.	Colour - dull dk-m green Grain size - vf matrix; f-l frags Vw foliated, massive and. lapilli tuff with minor sections of f and. t and rhyodac tuff(?)/cx tuff top contact is fault bottom contact ? Multilithic lapilli tuff is mx supported-f.ash & 5-15% fp cx, with 5-20% lapilli size subang-round frags. Fragments include 5% cream-coloured felsic qtz phyric(?), also 1-5% cherty tuff-lt grey, 1-2% dk green aph. frags 2-8mm. Note section of f. ash poorly lam at 41.2-41.7m layering ? 45-55	 45 55	- vw-w chl - w-m 1mm calc veinlets - w-m sel ep - w chl	tr py	bot ctc irregular, near intrusive looking.
43.80 TO 48.80	FAULT ZONE/ BRECCIA	Colour - dk dull green-m green, loc pale green Grain size - vf-m matrix; frags up to lapilli size Fault bx/blocky zone in andesitic tuff and lapilli tuff(?), includes possible dior. dykes. V. sim to above and. lapilli tuff, although many fragments are distinct angular fault bx origin.		- w-m chl - loc w sel ep - loc clay +/- chl +/- ser gouge planes	tr-2% vfg diss py	bot ctc not fault but rather irreg. appears as if underlying felsics make up some of the frags in the fault bx. Fragments include 1-2% cherty tuff, 10% quartz-vein type material, mafic 1-2% ash.

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		Mx supported multilithic fault bx, 15% frags 2mm-5cm across top contact gouge plane bottom contact, irregular	 5 30			
48.80 TO 53.60	RHYODAC FQP CX TUFF MINOR SILICEOUS TUFF/CHERTY TUFF	Colour - lt grey/biege, also wh, & m grey Grain size - vf-f matrix; aph-sil tuff; f-c cx Vw foliated, crudely-poorly layered section dominated by coarse fqp crowded cx tuffs (fp <1-3mm, 5-20%) (qe <1-1mm, 2-5% smokey grey, with a sericitic mx) Section also includes narrow chert or siliceous exhalite layers (aph, lt grey 8-20cm), & cx poor f tuffs s serz. fol'n 50-70 layering 50.4-50.5m: chert/siliceous tuff with minor <1cm layers of fpq cx t. 51.9-52.0m; chert/sil. tuff sim to above	 50 70 50 	- m-s 1-2mm qtz veins	2% py along fract.	
53.60 TO 54.30	DAC F. APHYRIC TUFF	Colour - dull med grey-brown Grain size - vf W foliated, massive, f dac tuff with tr <<1mm qtz eyes. rel homogeneous fol'n 45-50 bottom contact 50-55	 45 50	- s chlz/serz - loc calc flooded, overall m-s 1-2mm calc veins	tr-1% vfg py	
54.30 TO 54.40	CHERT	Colour - lt. grey Grain size - aph Crudely layered chert, upper ctc sharp, lower ctc fault layering	 50	- minor ser along fol'n planes	tr-1% diss py	
54.40 TO 55.20	FAULT	Colour - dull m-dk green-grey Grain size - vfine-fine Fault gouge/milled bx in f dac tuffs (sim to 53.6-54.3m) bottom ctc, sheared	 55	- s ser +/- chl + clay in gouge - m 2mm-10mm wh. qtz veins throughout	1-3% py as diss + blebs	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
55.20 TO 57.20	RHYODAC FQP CROWDED CX TUFF WITH MINOR LAPILLI SIZE FRAGS	Colour - lt. grey-wh Grain size - vf matrix; f-c cx lap frags Variably w-s sheared & broken-up fqp crowded-coarse cx tuff with <5% lapilli size felsic fragments. Fp 10-12%, <1-3mm; qtz eyes 2-5% <1-2mm bottom ctc sharp	60	- w-s ser dependent on degree of shearing	2% py as fg diss + blebs	
57.20 TO 59.10	DAC.-AND. F. APHYRIC TUFF	Colour - dull med grey-green Grain size - vf M foliated, rel homogeneous dac (?) f. tuff. Note 5% 2 x .5mm mafic stretched-out phenocrysts bottom ctc ?fault? fol'n (80-50)	60	- S-I <<1mm calc veinlets - m ser +/- chl	nvs<1% diss fg py	V. blocky interval
59.10 TO 59.80	FAULT/ FAULT BX	Colour - dk grey, m-dk green Grain size - fine Broken-up, gouge of above tuff and dk grey argillite bottom ctc (Not fault?)	60	- clay-ser +/- chl in gouge - m-s 1-2mm calc veins	tr py	
59.80 TO 60.00	ARGILLITE, CHERTY	Colour - m-dk grey Grain size - vf-aph Bedded (2-4mm) siliceous or cherty argillite ctcs sharp. Weakly graphitic. Bot ctc appears shallow but it could represent a frag in fpq cx tuff layering 25-30 bottom ctc ? ?	25 10	- w qtz +/- py 2-4mm veinlets	3-5% py vfg as diss as str with qtz veinsw and frac coatings	geochem
60.00 TO 75.30	RHYODAC FQP CROWDED CX LITHIC TUFF	Colour - lt grey-biege Grain size - aph-f matrix; f-c cx lap frags Massive, vw foliated rhyodacitic fqp cx-lithic crowded tuff. Includes 5-10%, ave 10%, <1-4mm, ave 2mm fp phenos. Qtz eyes include a whitish & a smokey grey generation 2-10%, ave 5% <1-3mm, ave 1mm. fol'n (approx.) Fragments 1-5%, 2mm-3cm ave 1cm, includes 1% argillite throughout, 2% felsic qp, 2% lt grey chert. Note at 69.7m arg layer or frag c/a 45, 3mm.	50	- tr-w ser, variable - loc s gashlike <1mm calcite veinlets	1-3% diss fg brassy brown py, also local str along fractures and fine py layers(?) assoc with qtz veins. i.e.) 71.1-71.2m: 8-12mm band of vfg py assoc with wh. qtz or chert layer c/a 45.	Litho BCD# 3960 66.0-69.00m Note ax, is vfg ash/rel homog.

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		Also at 65.1-65.4 note m grey aph. bedded chert/ cherty argillite layer or poss. frag(?) layers ave 3mm thick. top ctc layering 10-15 bot ctc ?	 15 10 65	- s calc +/- qtz 1-2mm veinlets	3% diss along chert interlayers, vfg py	
75.30 TO 76.00	FAULT	Colour - lt. grey-wh. Grain size - vf-m Sheared & veined rhyodac cx-lithic tuffs with gouge at base of interval (10cm) gouge	 70	- mod 1-2cm thick wh qtz veins c/a 70 & 20	tr py	
76.00 TO 102.80	RHYODAC QFP CX-LITHIC TUFF	Colour - lt-vlt grey Grain size - vf-aph matrix; f-c cx lap frags Massive, vw foliated, rhyodac qfp crowded cx-lithic tuff, sim to above though distinctly qtz eye rich & includes fine ash "beds"/sections & minor argillite fp phenos 5-35% (1-6mm, ave 1-3mm Qtz eyes 5-10%, (1-2mm, ave 1mm Fragments 2-5% range 2mm-5 x 1cm, include argillite, cherty tuff/chert & cx-lithic tuff?		- tr-w ser, ave vw ser - loc silicified?	tr-2% diss vfg py loc 3-5% py over narrow (30cm) intervals	Litho BCD #3961 90.0-93.0m
		76.0-78.1m: rhyodac qtz eye 15% - fp 2-5% - lithic 5-10% tuff				
		78.1-79.0m: f. qtz-eye cx tuff. Qtz eyes 15% (1mm F. tuff mx. loc lithic cherty frags		w ser	loc vfg py brown-blk 3-5% as a str c/a 20, 3mm thick at 78.5m.	
		79.1-82.0m: rhyodac qfp-cx-lithic tuff 15-20% qtz eyes 5% fp phenos 5% fragments (1% argillite) fol'n layering ?	 40 30	vw ser	loc vwfg py str 1-2mm c/a 5 at 81.2-81.4 & 79.4-79.6	Note blkish mineral with py poss sphal?
		82.0-82.05m: dac-rhyodac f tuff "bed" with argillite frags & f qtz eyes 5% layering ?	 25			
		82.05-82.6m: rhyodac f qp cx-lithic tuff 10-25% fp phenos 5-15% qtz eyes 2-3% frags				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		82.6-84.3m: cheared, broken-up, loc gouge (fault?) in rhyodac crowded fpq cx-lith tuff		- variable vw-s ser (s in gouge) - w-m qtz 2-30mm veins	1-2% diss py	
		top ctc	35			
		bottom ctc, approx.	40			
		84.3-86.0m: rhyodac qtz eye cx t. 2-5% qtz eyes <1-3mm, v fine sericitic ash ax.		- vw ser	1-2% fg diss + blebby py	
		86.0-89.3m: rhyodac qfp crowded cx-lithic tuff 10% qtz-eyes, 5-10% fp, 5% 1-5mm frags Note fine dac-rhyodac tuff layer at 87.9-87.95 (F qtz phyric tuff)		- vw-w ser - loc vw chl	1-3% py	Note arg. frags 1-3mm 1%
		layering	35			
		89.3-90.1m: rhyodac f tuff/ f qtz eye (10%-<1mm) cx tuff. Poorly layered. Poss minor cherty tuff layers (1cm thick)		- vw ser	- tr py	
		layering 25-30	25			
		90.1-93.9m: rhyodac qfp crowded cx-lithic tuff, with minor cherty tuff-chert layers(?) or frags 10% qtz eyes, 5-15% fp phenos, 5-10% frags (chert, arg, etc.)		- vw ser - loc qtz veins 2-4mm thick	tr-2% diss py	
		fol'n	45			
		93.9-94.5m: massive milky white qtz vein			tr-2% py as blebs in fractures	
		top ctc, approx	20			
		bottom ctc	20			
		94.5-97.6m: rhyodac qfp crowded cx-lithic tuff. Crudely banded 5-15% qtz eyes, 5-15% fp phenos, 5-10% fragments		- w-m ser - w qtz veins c/a 10-25, 2-30mm thick	1-3% py as diss + blebs in fractures	
		layering ? ? 5-10	5			
		97.6-98.5m: layered argillite & greenish calc flooded tuff & minor lt grey cherty tuff. Poss. this section a fragment? due to shallow core axis angles.		- I calc flood in med-lt dull green (sheared) - S calc +/- qtz as tension gashes in the argillite. - S ser (green tuff)	1-2% as diss & <1mm lamination within the argillite parallel layering	Argillite cherty with 2mm laminations Note the "greenish tuff" v. similar to f.w. of argillite interval at approx. 119m.
		top ctc, broken up				
		bottom ctc 40-45	40			
		layering 0-5 (0-30)	5			
		98.5-99.8m: rhyodac crowded cx-lithic tuff, wh-biege. 5-10% <1-1mm qtz eyes, 10-15% 1mm fp phenos, <5% frags 1-3mm (no argillite)		- w ser	- <1% diss py	
		bottom ctc, broken 15-30	15			
		fract, py	0			

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		99.8-100.0m: broken up argillite (large frag?) minor dull lt-med tuff.		- m-s qtz +/- calc 1-2mm veinlets	- tr py	somewhat graphitic
		bot ctc	15			
		100.0-101.6m: rhyodac crowded qfp cx-lithic tuff 5-10% qtz eyes <1-3mm, 15% frags, qtz <5% fp phenos		- vw-w ser	tr-<1 py	
		bottom ctc	5			
		101.6-102.3m: S foliated dull med green dac tuff? calc flooded. 1cm of argillite at base of section		- S ser/chl(?) - S calc veins/flood	tr py	same as f.w. to main argillite at approx. 119m.
		fol'n 0-15	10			
		layering ? 5-10	10			
		102.3-102.6m: rhyodac crowded cx-lithic tuff same as 100.0-101.6m				
		bottom ctc sheared				
		102.6-102.7m: S foliated dull med green dac tuff with 1cm argillite beds c/a 30. Same as 101.6-102.3				
		Layering	30			
		bottom ctc	45			
		102.7-102.8m: rhyodac crowded cx-lithic tuff m-s sheared, fault? sim to above cx-lithic tuffs.		- m ser	- 3% blebby fg py + discon str in frac.	
		bottom ctc sharp	85			
102.80 TO 117.60	ARGILLITE-GRAPHITIC, MINOR CHERTY ARGILLITE, CHERT, RHYODAC CX TUFF	Colour - blk-lt/m grey Grain size - aph-vfg loc f in cx tuffs Well fractured, well laminated-crudely lam. argillite, loc cherty argillite, chert, fault gouge, rhyodcitic cx tuff. Faulted internally throughout.		- S/S-I calc +/- qtz <<1-2mm veinlets throughout	tr-8% py in discon narrow bands, bleb & minor dissem.	
		top ctc fault 80-90	90			
		102.8-102.81m: Fault gouge				
		102.81-103.m: rhyodac coarse lt-m grey ash-cx tuff vague 5% <1mm fp. Has 3cm dk grey cherty arg. bed		- s calc +/- qtz veinlets, numerous orientations.	3-5% py as discon bands at arg-tuff ctc, also dissem elongate <1 x 3mm blebs within tuff.	Is this an arg. bed or fragment?
		layering	20			
		bottom ctc	25			
		103.0-103.6m: Poorly lam. dk grey cherty (?) argillite, w foliated with gp on fol'n planes			- 3-5% brassy brown py in discont bands <1mm thick parallel to layering	Geochem: BCD #6363 102.9-104.0m
		layering 15-20	20			

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		103.6-104.0m: Fault gouge/bx, graphitic milled-up zone			- 5% py as blebs & dissem.	
		top ctc	30			
		bottom ctc	15			
		104.00-107.0m: Dk grey-blk graphitic argillite, with minor med-lt grey chert/argillageous chert beds. Mod-well laminated loc contorted/folded (chert at 105.4-106.1 & 106.5-106.7)		- calc +/- qtz veinlets sim to above	3-8% py as blebs and discont bands parallel layering. Poss. .5mm layers of py	Note greenish cast in cherty beds - poss sphal(?) Note interval gp planes with slickenlines.
		layering 35-40, (10-80)	40			Geochem: BCD#6364 104.0-105.5m
		bottom ctc 35-40, (10-80)	40			
						Litho: BCD #3964 105.5-107.0m
		107.0-108.0m: Interlayered lt grey siliceous rhyodac tuff-lithic tuff with argillite. Rhyodac tuff included arg frags (1cm) + <2cm thick layers within it (107.0-107.5m)		- m-s calc +/- qtz in tuffs - S-I cacl +/- qtz in argillite/cherty arg.	5-8% vfg py as bands (cont-discont), & dissem. py bands best in argillite/ cherty argillite	Note argillite beds folded
		Note folded/contorted dk grey cherty argillite with <1mm py bands at 107.5-107.75m.				Geochem: BCD #6365 107.0-108.0m
		End of section is rhyodac cx-lithic tuff & interlayered/sheared arg. shot full of calc. veinlets.				
		layering 45-50, (30-80)	50			
		bottom ctc, fault	15			
		108.0-108.1m: lt-med grey layered chert			- 3-5% vfg py	
		bottom ctc	20			
		layering 25-30	30			
		108.1-109.9m: rhyodac crowded cx-lithic tuff (30% fp, 2-5% qtz eyes, 5% frag) with minor cherty argillite beds and argillite gouge planes/ graphitic planes		- tr ser	2-5% vfg py mainly as dissem.	Note folded arg. beds 1cm, poss. M-type parallel to core axis.
		Note argillite bed or frag folded at 0-20 c/a				Geochem: BCD #6366 108.0-109.0m Poss. unit a siliceous tuff
		109.9-117.0m: Mixed section of thinly bedded/ layered chert (60%) minor arg/cherty argillite (15%) gouge planes/sections throughout (25%) graphitic. Cherty in well lam (1-<1mm layers) 5-20cm thick		S-I calc +/- qtz veinlets & gashes <1-1mm	3% py as diss + loc discon <1mm bands	V.blocky & gouged but >80% recoveries. Geochem BCD #6367 109.0-110.0m BCD #6368 110.0-111.5m BCD #6369 111.5-113.0m BCD #6370 113.0-114.5m BCD #6371 114.5-117.0m
		Top ctc, gp plane	65			
		bottom ctc	70			
		layering (35-55)	45			
		117.0-117.6m: F. siliceous/cherty tuff (to 117.2) & dac cx crowded fp phyric bed (to 117.6)		- w calc +/- qtz veinlets - w qtz 3mm veinlets		Geochem: BCD #6372 117.0-117.7m
		layering	70			

117.60 TO 119.00	FAULT (INCLUDES CTC WITH F.W.)	Colour - includes lt dull green, dk grey-blk, vlt grey Grain size - aph also vf-fg Fault, broken-up rock & gouge in arg. & lt. grey dac tuff (or poss. sheared dior.) top ctc ? ctc with F.W. rocks bottom ctc	 25 15	- S-I irreg calc +/- qtz veinlets within the argillite, m qtz +/- calc veins in lt grey dac tuffs, S-I calc flood in lt green dac tuff (or dior.) in footwall.	2-3% ov as gr disseм	Geochem: RCD #6373 117.7-118.9m
119.00 TO 125.80	DAC-AND TUFF, MINOR LAPILLI FRAGS	Colour - med dull green M sheared/foliated rel homogen looking dac-and tuff with local lapilli size frags (Poss. includes sheared dior. dykes as denoted by 5-10% leucoxene content) shear bottom ctc ?	 45	- I calc flood throughout, - m chl +/- ser (?)	tr py	Note granular texture
125.80 TO 129.70	AND. LAPILLI TUFF	Colour - dull med green Grain size - f ax, lap frags Vw foliated multilithic and-dac lapilli tuff. Matrix supported, 25-35% fragments. Frags 2mm-3cm, ave 4-6mm. Include Qtz phyric 10%, mafic aphyric <5%, chert <5%, qfp phyric <5% top ctc	 45	- w chl +/- ser	- tr-3% diss py, note some felsic frags with up to 5% diss fg py	
129.70 TO 140.30	AND. CX TUFF WITH MINOR DYKES	Colour - med-dk green Grain size - fine ax; m +/- c cx Vw foliated and. cx tuff with minor narrow and/dior dykes throughout. 127.8-132.8m: and. cx tuff, 10-15% 1-2mm fp phenos fol'n bottom ctc 132.8-133.5m: dior. dyke, fg mod sheared bottom ctc 5-10 shear 133.5-134.1m: and. cx tuff sim to above bottom ctc, broken-up 134.1-136.4m: And/dior aph-vfg v. dk green dyke bottom ctc ?	 60 65 10 15 15	- w chlz - w-s sel epz - loc qtz-ep altn - w chl - s sel epz (pist green) of fp phenos - w-m calc +/- qtz veins 2-10mm thick - w chl(?) - flood with calc + veined by <1-1mm veinlets - m sel ep, overprinted by ep-qtz altn patchy + veins throughout - w chl	1-5% fg py as disseм, blebs & discont stringers 3-5% py mainly as irreg. blebs. tr py 1% py tr py	 No chilled margin, but more intense calc at ctc. Note hem on frac coatings toward end of interval. - Note 5% diss <1mm leucoxne grains

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		136.4-137.2m: And. cx tuff med green-grey bottom ctc	10	- w chl - w sel ep - m-s <1mm calc veinlets	tr-1% py	Litho: BCD #3963 136.5-139.5m
		137.2-137.4m: dyke, mafic aph., dk green bottom ctc, approx	30	- m chl	3% diss-blebby py	Poss a f. ash bed ??
		137.4-139.0m: and. cx-lithic tuff, 10-5% <1-1mm fp phenos, 5% -15% lapilli 2-10mm frags, mainly whitish felsic(?) or bleached andesitic frags. Vw foliated fol'n ?	15	- vw chl - w-vw sel ep - mod bleached	tr py	Near lapilli tuff
		139.0-140.3m: f. and. laminated tuff, with minor cx-lithic tuff of above layering 35-40 bottom ctc	40 30	- w chl - tr-vw ep - loc w qtz-ep veins	tr-1% py	
140.30 TO 147.80	FP PORPH DIORITE E.O.H.	Colour m-dk green Grain size - vf-f gm; cx m-c Massive fp porphyritic diorite. 140.3-140.7m: aph-vfg dk green chilled margin 140.7-144.0m: fp porh. diorite 2-5% 1-2mm phenos, vfg groundmass shear 144.0-147.8m: fp porph diorite 5-15% 1-3mm phenos, 5-10% <1mm leucox, 25% <1mm fp in gm, 40 % mafics <1-1mm in gm.	10	- vw chl/ep - w qtz +/- calc 2-20mm irreg veins	nvs-tr py	Note box 24 spilled 143.1-147.8 Note 5-10% <<1mm leucoxene throughout.

Sample	From (m)	To (m)	Length (m)	SIO2 %	AL2O3 %	CAO %	MGO %	NA2O %	K2O %	FEO %	MNO %	TIO2 %	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	AS PPM	SB PPB	SR %	ZR %	TOTAL %
3958	20.00	22.50	2.50	52.02	19.55	5.85	4.89	3.51	0.91	9.55	.21	.98	.027	114	66	3	0.8	10	13	2	.06	.009	97.57
3959	49.00	52.00	3.00	68.34	14.72	2.89	1.29	2.11	3.96	2.42	.07	.29	.071	33	62	7	0.6	5	1	1	.02	.005	96.17
3960	66.00	69.00	3.00	70.75	14.24	1.50	0.94	3.44	3.38	2.40	.07	.20	.087	12	29	6	0.6	5	4	1	.02	.007	97.03
3961	90.00	93.00	3.00	70.72	14.68	1.60	1.01	3.00	3.29	2.41	.08	.26	.065	11	41	6	0.7	5	6	1	.01	.007	97.14
3064	105.50	107.00	1.50	73.36	10.07	2.67	0.88	0.20	3.07	4.13	.07	.31	.119	52	108	12	1.3	5	50	3	.01	.005	94.88
3062	119.30	122.30	3.00	44.04	15.45	9.76	6.41	2.63	0.84	10.39	.40	.83	.025	125	43	19	0.1	5	9	6	.02	.005	90.81
3063	136.50	139.50	3.00	52.65	19.01	5.09	3.82	3.37	1.68	8.55	.18	.94	.043	61	71	8	1.1	5	14	2	.04	.010	95.38

HOLE NUMBER: CM-6

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SIC
PROJECT NUMBER: 326
CLAIM NUMBER: COPPERMINT I
LOCATION: NTS 92B/13

PLOTTING COORDS GRID:
NORTH:
EAST:
ELEV:

ALTERNATE COORDS GRID: FIELD
NORTH: 3+91S
EAST: 2+57W
ELEV: 170.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 166.40m
START DEPTH: 0.00m
FINAL DEPTH: 166.40m

COLLAR GRID AZIMUTH: 210° 0' 0"

COLLAR ASTRNOMIC AZIMUTH: 210° 0' 0"

DATE STARTED: June 6, 1987
DATE COMPLETED: June 8, 1987
DATE LOGGED: 0, 0

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: F. BOISVENU DRILLING LTD
CASING: 4.0 m
CORE STORAGE: 6722 LAKES ROAD DUNCAN

PURPOSE: TO TEST MINE PACKAGE 150M EAST OF SPH-PY STRINGER MIN'Z

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
30.48	-	-46°30'	ACID	OK		-	-	-	-	-	
60.96	-	-45°30'	ACID	OK		-	-	-	-	-	
91.44	-	-45°30'	ACID	OK		-	-	-	-	-	
121.92	-	-44°30'	ACID	OK		-	-	-	-	-	
152.40	-	-44°30'	ACID	OK		-	-	-	-	-	
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LOGGED BY: G.S. WELLS

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
0.00 TO 4.00	OVERBURDEN					CASING
4.00 TO 31.75	ANDESITIC TUFF TO LAPILLI TUFF	Green Medium grained Locally have 20% feldspar crystals; trace qtz crystals. Interbeds of ashy matrix 1-2% lithic fragments locally. Unit generally massive; contacts between ashy and crystal tuff layers indistinct. 8.2m (bedding) 18.9 - 23.9 2-3% fragments (up to 4 cm x 2 cm) - generally aligned = bedding? andesitic to very fine grained felsic fragments 20.3m very fine grained, green, mafic dikes at: 26.0 - 26.2 26.6 - 27.2 26.8 - 30.25 3-5% fragments; andesitic and felsic (same as 18.9 - 23.9) 30.25 - 30.7 very fine grained,dark green mafic dike 30.7 - 31.75 fine grained andesitic ash	60 55	Very weak chlorite throughout - feldspar crystals epidotized 1% qtz-carb veinlets	Trace -1% pyrite throughout	
31.75 TO 34.80	FELSIC CRYSTAL TUFF	Green Fine-medium grained 1-2% lapilli sized felsic fragments 10-15% very fine grained-fine grained quartz crystals set in green matrix		Matrix pervasively chloritic and epidotized	None	Similar look to rocks at start of deepening of CM-4 = 85.5
34.80 TO 37.50	DIORITE	Greenish green Medium grained Massive		Moderate epidote 2-3% quartz-carb veins	None	
37.50 TO 42.45	ANDESITIC ASH - CRYSTAL FUFF	Green Fine grained Trace lithic fragments; -2-3% feldspar crystals; the odd quartz crystal Massive.		Patchy epidote; pervasively weakly chloritic. 1% quartz-carb veins	None	Except for the odd fragment could be massive flow or diorite

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
42.45 TO 46.45	DIORITE	Dark green Medium grained Massive. Lover contact sharp at 60 degrees 46.45	60	2-3% quartz-carb veins Trace hematite in veins	None	
46.45 TO 60.30	ANDESITIC ASH - LAPILLI TUFF	Weakly foliated - the odd fragment 50.3 m 56.1 - 60.3 lapilli tuff with 1-2% silicified, block size fragments. fragments locally aligned 59.7m contacts sharp	55 70	46.45 - 56.1 weakly chloritic 56.1 - 60.3 weakly chloritic and epidote-rich core bleached light green due to epidote		
60.30 TO 108.20	DIORITE	Dark green Fine grained to c. grained Massive - chill at upper contact - becoming foliated toward lower contact 60.3 (contact) 74.5 - 108.2 becoming m. to c. grained - no question about being dioritic. Locally have foliated sections. 78.2m 88.8 - 89.0 fine grained, green mafic dike, sharp contacts 89.0m	30 45 50	3-5% carb veins throughout locally hematite associated with veins - pervasively carb-rich Patchy leucoxene alteration (brown wisps and skeletal crystals)	None	
108.20 TO 108.25	ARGILLITE	Black Fine grained In sharp contact with diorite and underlying felsic tuff		None	None	
108.25 TO 122.00	FELSIC ASH/ CRYSTAL FUFF	Greyish white Fine graind Well-foliated 114.4m fol'n 113.3 - 122.0 locally have thin (0.1m wide) feldspar-phyric (30%) beds interlayered with more ashy layers 120.7m bedding	65 65	108.25 - 113.3 intensely sericitic with siliceous beds/fragments? 113.3 - 122.0 patchy moderate chl. and sericitic	108.25 - 113.3 1% diss py as bands parallel to foliation	108.2 - 111.35 fault gouge - pervasively carbonate-rich (diorite may have been intruded along this structure)

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
122.00 TO 155.00	ANDESITIC ASH WITH INTERBEDS OF FELSIC CRYSTAL TUFF	Greenish grey Fine grained Foliated and locally bedded trace lithic (andesite) fragments. Trace quartz crystals Upper contact sharp at 122.0 128.3 (bedding) 136.0m 137.75 - 138.85 fine graind felsic ash, chloritic seams; whitish grey in colour 138.85 (contact) quartz-phyric crystal tuffaceous beds with 5-10% q's at: 139.7 - 140.25 141.4 - 141.85 143.1 - 145.6 (qtz "eyes" bluish in colour) 145.9 (bedding)	45 60 60 80 90	Weakly chloritic 1-2% quartz-carb veins 134.2 - 134.7 pseudo-breccia texture due to quartz-chl veins quartz-phyric tuffs are green in colour due to weak chlorite and epidote	Trace pyrite as wisps parallel to foliation	
155.00 TO 166.40	NANAIMO SEDIMENTS	Greyish green M.grained matrix Conglomerate, rounded pebbles of quartzite, jasper, argillite, felsic volcanics, andesite, etc. in medium grained gritty matrix. - contact with andesitic ash = fault gouge END OF HOLE		Unaltered	None	Fault gouge and blocky core from 155.0 - 156.7.

Sample	From (m)	To (m)	Length (m)	SIO2 %	AL2O3 %	CAO %	MGO %	NA2O %	K2O %	FEO %	MNO %	TIO2 %	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	AS PPM	SB PPB	SR %	ZR %	TOTAL %
BCD6394	26.80	29.80	3.00	53.59	17.7	6.81	4.19	5.52	0.26	8.47	0.26	0.88	0.010	32	50	13	1.4	10	9	2	0.04	0.007	97.73
BCD6395	50.60	53.60	3.00	57.07	17.83	4.49	3.59	4.71	0.98	7.82	0.23	0.83	0.011	62	63	17	1.4	5	17	4	0.03	0.007	97.6
BCD6396	110.30	113.30	3.00	67.63	15.94	2.56	0.98	1.29	3.96	2.00	0.06	0.30	0.154	29	127	28	1.0	15	3	1	0.02	0.005	94.9
BCD6397	148.10	151.20	3.10	44.85	14.82	7.48	4.92	3.21	1.13	7.78	0.25	0.74	0.065	68	46	12	1.4	5	17	2	0.04	0.005	85.29

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SIC
PROJECT NUMBER: 305
CLAIM NUMBER: SICKER I
LOCATION: NTS 92B/13

PLOTTING COORDS GRID: NTS
NORTH: 1533.00S
EAST: 3650.00E
ELEV: 511.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 0.00

COLLAR DIP: -75° 0' 0°
LENGTH OF THE HOLE: 625.10m
START DEPTH: 0.00m
FINAL DEPTH: 625.10m

COLLAR GRID AZIMUTH: 45° 0' 0°
COLLAR ASTRONOMIC AZIMUTH: 45° 0' 0°

DATE STARTED: June 10, 1987
DATE COMPLETED: June 20, 1987
DATE LOGGED: 0, 0

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: YES
HOLE SIZE: NQ

CONTRACTOR: F. BOISVENU DRILLING LTD
CASING: 6.1m
CORE STORAGE: 6722 LAKES RD, DUNCAN

PURPOSE: TEST CHLORITIC AND SERICITIC TUFFS, AND CHERT UNITS IN THE GAP AREA AND THE MYRA-MITINAT CONTACT

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
30.50	-	-77° 0'	ACID	OK		-	-	-	-	-	
61.00	-	-75° 0'	ACID	OK		-	-	-	-	-	
91.00	-	-75° 0'	ACID	OK		-	-	-	-	-	
121.90	-	-75° 0'	ACID	OK		-	-	-	-	-	
152.40	-	-74° 0'	ACID	OK		-	-	-	-	-	
182.90	-	-75° 0'	ACID	OK		-	-	-	-	-	
213.40	-	-75° 0'	ACID	OK		-	-	-	-	-	
243.80	-	-74° 0'	ACID	OK		-	-	-	-	-	
274.30	-	-74° 0'	ACID	OK		-	-	-	-	-	
304.80	-	-74° 0'	ACID	OK		-	-	-	-	-	
381.00	-	-73° 0'	ACID	OK		-	-	-	-	-	
457.30	-	-72° 0'	ACID	OK		-	-	-	-	-	
533.50	-	-75° 0'	ACID	OK		-	-	-	-	-	
609.60	-	-70° 0'	ACID	OK		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
0.00 TO 6.10	OVERBURDEN					
6.10 TO 96.00	ANDESITIC CRYSTAL TUFF with EDIDOTE CLASTS	Colour - dark green matrix; light green clasts Grain size - fine-med Massive. - epidote clasts are subrounded - some may be remnant fragments. - generally 1-2cm in diameter - majority have ragged edges = alteration feature have 5-10% epidote patches and "clasts". 38.8-38.95: fgr. green, mafic dike 83.8-88.1 - magnetic, fgr., dark green mafic dike-hard to distinguish exact contacts.		- feldspar crystals and clasts are epidotized - also have epidote veinlets commonly bordering pyritic stringers. 28.4-30.0: zone looks silicified; lacks epidote "fragments". 37.6-38.4: chloritic stringer 46.5-47.8: chloritic stringer 49.0-49.1: carb-qtz-chl vein 53.4-53.7: 10% dark red hematite spots in siliceous zone; 2-3% carb veins. 83.8-88.1: tr-1% epidote veinlets in dike.	1-2% diss py throughout (locally enriched) some of epidote "clasts" have nucleated around pyrite "nodules" - pyrite occurs as disseminations, stringers +/or veinlets. 28.4-30.0: 5-7% py as disseminations + veinlets; tr cp. 34.1: 2cm wide py-cp stringer 37.6-38.4: 10% py, tr-1% cp in chloritic, blocky zone. 39.75-39.8: py-cp stringer 49.0-49.1: 5% py, 1% cp in vein 74.15: tr-1% cp in 2cm wide qtz-carb vein	37.6-38.4: blocky core blocky core at: 46.5-48.75 51.65-52.3 53.3-57.3 68.9-71.6: blocky core 90.2-102.4: blocky core
96.00 TO 104.25	CHLORITIC FELSIC TUFF?	Colour - greenish grey Grain size - fine Tr qtz "eyes" - textures obscured by fault gouge and blocky core fault gouge at: 97.0-97.3 103.35-104.25 96.0m 103.9-104.1: black argillite? + v.fgr pyrite in gouge zone.	30	pervasively chloritic; 1-2% carb veinlets. tr epidote patches	5% diss py	- alteration intense - uncertain whether this is an altered felsic tuff or altered mafic tuff? - lower contact = good fault gouge

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
104.25 TO 163.50	DIORITE	Colour - greyish green Grain size - med. Massive. approx. 5% feldspar crystals - ragged outlines. locally % of feldspar crystals increases so that rock has typical dioritic/intergranular texture. fault gouge at: 147.55-147.65 - foliated 148.7-148.9	 30	pervasively carbonate-rich approx. 5% carb + qtz veinlets - tr chloritic veins carbonate alteration not as pervasive in areas of intergranular texture. 149.5-151.5: fgr. chl-carb zone	none	
163.50 TO 174.20	MAFIC DIKE	Colour - grey Grain size - fine massive sharp contacts 163.75 - diorite inclusion near upper contact - 163.75-164.0 1 % feldspar crystals 174.2	 30 30 30	pervasively carbonate-rich 1-2% qtz veins. tr epidote veinlets - moderately to strongly magnetic	tr diss. py	possibly a lamprophyre dike - fgr., carb-rich
174.20 TO 345.10	DIORITE	Colour - dark green Grain size - medium feldspar-phyric 5-10% crystals - massive f.gr. mafic dikes at: 180.2-183.4 - perv. carb magnetic 191.8-191.9 192.4-192.6 204.4-205.0 - perv. carb., magnetic 206.1-206.45 - perv. carb., mag. 214.35-215.55 - perv. carb., mag 216.35-216.6- perv. carb., mag. fault gouge at: 217.4-217.5 f.gr., grey, mafic dikes at: 253.2-253.5 - carb rich 259.25-260.5 - carb rich fault gouge at: 261.3-261.7 262.0-262.1	 60 20 45 40 30 60 20	relatively unaltered. tr-1% qtz-carb veins 178.85-180.2: 3-5% magnetite crystals chl-carb zones at: 195.3-196.0 198.4-199.7 201.3-202.3 203.6-204.4 209.4-210.3 253.5-254.0	none	blocky core at: 262.0-264.8 268.3-272.3

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		fgr., green chloritic mafic dike at: 282.45-282.75		carb-chl vein at: 275.7-276.3 276.5-277.7	speck of cp in carb vein at: 306.0	blocky core at: 273.8-275.0 275.5-279.0 316.3-319.5
		good chilled contact	80	chl-carb zone at: 328.7-330.5 contacts sharp - possibly a mafic dike		
345.10 TO 374.50	ANDESITIC CRYSTAL TUFF/ASH	Colour - dark green Grain size - fine interbedded ashy and crystal-rich areas. 3-5% fsp crystals 5% epidote "clasts" = fragments? - diffuse boundaries - weakly foliated	60	fsp crystals + fragments? pervasively epidotized - matrix: weak to moderate chlorite	2-3% py as disseminations + in veinlets	looks similar to unit at top of hole except that epidote clasts have more diffuse boundaries + look more like an alteration feature.
		373.9-374.5: fault gouge			354.6-354.75: cgr. py in stringer with associated qtz-carb vein.	
374.50 TO 381.50	FELSIC to INTERMED. CRYSTAL TUFF	Colour - greenish grey Grain size - fine-med. 5-10% qtz eyes; 5-10% epidotized feldspar crystals - weakly foliated	60	pervasively chloritic	5% py as disseminations	alteration makes rock look intermediate in composition.
381.50 TO 382.70	ANDESITIC ASH TUFF	Colour - greyish green Grain size - fine well-foliated; contacts sharp 1-2% epidotized fragments with foliation/bedding wrapping around them. 382.0 foliation 382.7 contact	60 65	weak patchy epidote, moderately chloritic	tr-1% py.	
382.70 TO 390.75	ANDESITE CRYSTAL to LAPILLI TUFF	Colour - green Grain size - fine gr. matrix; med gr. crystals 20-30% epidotized feldspar crystals (2-3mm x 1-2mm) 5% epidote patches = possible fragments - subrounded - up to 1cm diameter		moderate epidote weakly chloritic	tr-1% py	
		387.1-390.75: fgr. mafic dike, carb-rich	50			

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
390.75 TO 427.40	FELSIC to INTERMED. CRYSTAL TUFF	Colour - grey Grain size - fine to med. beds of qtz-phyric (10-15%) crystal tuff interlayered with feldspar-rich beds - bedding indistinct but well-foliated 393.15-393.85: fgr., grey mafic dike 398.5: foliation 411.0: foliation f.gr., grey mafic dikes - pervasively carbonate-rich at: 416.3-418.5 418.6-418.9 419.8: foliation 425.8-427.4: Andesitic ash with epidote veins + patches; cherty towards lower contact 427.4: contact	 55 60 60 50	feldspar crystals pervasively epidotized. - moderately chloritic throughout with 1-2% intensely chloritic sulphide stringers. qtz-chl zone at: 423.0-423.7 intensely chloritic at: 423.7-424.85	overall 3-5% py as disseminations parallel to foliation and as stringers - locally pyrite content enriched as noted below 418.9-423.0: 5-7% py	chemistry indicates that rocks are intermediate in composition
427.40 TO 565.60	ANDESITIC ASH/CRYSTAL TUFF with interlayerd FELSIC CRYSTAL TUFFS	Colour - dark green Grain size - fine predominately ash with patches with 5-10% epidote "clasts" and 10% epidotized feldspar crystals - weakly foliated 434.4 436.9 443.5-445.3 - felsic crystal tuff- fgr., greenish-grey qtz-phyric 10-15% small q's. - contacts with andesitic tuff are indistinct. - moderately chloritic 445.6 451.35-565.5 tr, fgr. grey chert fragments in andesitic matrix. 452.3 462.3	 60 40 55 60 55	pervasively mildly chloritic with the odd intensely chloritic stringer. feldspar crystals + "clasts" - pervasively epidotized.	428.5-437.0 10% py as disseminations and veinlets. 437.0-449.6 3-5% py, diss. + as stringers. 449.6-464.0 1-2% py as diss + stringers	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		464.1-465.9 QFP dike - relatively sharp contacts. 5% qtz "eyes"; 25-30% feldspar crystals - relatively unaltered.			464.0-475.9 - none	465.3-466.8: blocky core
					465.9-565.6 - 1% diss. py in andesitic crystal tuff - no sulphides in mafic dike	474.2-474.5: blocky core
		474.5-475.4 f.gr. grey, mafic dike, pervasively carbonate-rich lower contact chilled	30			
		476.6-476.8 Cherty bed - relatively sharp contacts	55			
		f.gr. grey mafic dikes; carb-rich at: 491.35-494.6 485.7-486.4	20			
		491.8-493.5 felsic-looking tuff including cherty zone at 492.9-493.1			492.9-493.1	- uncertain as to whether this is a
		492.9 498.5	55 30		10% py as disseminations + stringers in chert	chert or qtz vein.
		f.gr., grey, mafic dikes, carb-rich at: 500.00-503.25 - weakly magnetic 504.8-505.45 507.2-508.4 512.1-521.7 - weakly magnetic	40 50 20			
		521.7-522.2 QFP + mafic dikes - looks like QFP fragments in maifc matrix.	20			
		522.2-523.9 felsic tuff with the odd chert fragment		522.2-523.9 weakly chloritic	522.2-523.9 5% diss. py + in chloritic stringers	
		f.gr green, mafic dikes at: 523.9-524.05 524.4-525.2				
		f.gr. grey, mafic dikes, carb-rich at: 539.85-547.2 - magnetic				
		547.2-550.4 QFP dike(?) or tuff(??) m.gr, grey		547.2-550.4 - relatively unaltered.	547.2-550.4 1-2% py as stringers.	
		f.gr grey, mafic dikes, carb-rich at:		550.4-550.9: mt-qtz-chl vein	550.7-550.9: 1-2% py in vein	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		552.5-555.7 f.gr. grey, cherty looking zones in andesitic crystal tuff at: 556.95-557.05 560.75-560.9				
565.60 TO 603.60	FELSIC ASH/ CRYSTAL TUFF	Colour - greenish grey Grain size - fine qtz-phyric, felsic tuff with gradational contacts approx. 10% qtz crystals 3-5% fsp crystals occur in patches. tr-1% v.f.gr greysigh brown chert fragments. 572.5-576.6 Andesitic crystal tuff 5% epidote patches. lower contact sharp f.gr., grey mafic dikes, carb-rich at: 579.4-585.6 586.75-587.3 fsp-phyric bed at approx. 591.2-592.0 -locally chert fragments aligned = bedding? 592.0 593.0 fsp-phyric beds at: 595.25-596.0 600.2-601.85 f.gr. grey mafic dike, carb-rich at: 597.3-600.2 cherty look to fgr. qtz-phyric tuff at: 602.1-602.3	 40 50 55 30	565.6-603.6 moderately chloritic with intensely sericitic zone at: 566.05-566.4 feldspar crystals epidotized.	1-2% diss py - v.fgr. 601.85-603.6: 3-5% py.	chemistry indicates that unit is intermediate in composition.
603.60 TO 625.10	ANDESITIC CRYSTAL TUFF	Colour - greenish grey Grain size - med. to fine massive to weakly foliated. - local zones of epidotized fsp crystals + "clasts". - 2-3% chert fragments at : 603.6-604.9		weak to moderate, patchy epidote. - locally weak pervasive carbonate silicified cherty looking zones at: 605.2-605.35	1% diss py except where noted below. 605.2-605.35: 2-3% py	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
					615.4-615.6 - semi-massive pyrite stringer (chloritic matrix).	
				silicified cherty looking zones at: 620.35-621.5	620.35-621.5: 3-5% py as disseminations + stringers	
				622.45-622.85	622.45-622.85: 1-2% py	
		625.1 - E.O.H.		624.4-624.55	624.4-624.55: 1-2% py	

Sample	From (m)	To (m)	Length (m)	GEOCHEMICAL Cu ppm	Zn ppm	Ag ppm	Au ppb		COMMENTS
1501	28.40	30.00	1.60	580	42	1.0	5		
6502	37.60	38.40	0.80	3500	76	1.5	5		
6503	96.00	97.50	1.50	88	64	0.9	5		
6504	97.50	99.00	1.50	83	41	0.9	5		
6505	99.00	101.50	2.50	49	38	0.9	5		
6506	101.50	103.35	1.85	88	36	0.8	10		
6507	418.90	420.50	1.60	12	31	0.9	5		
6508	420.50	422.00	1.50	20	26	1.0	5		
6509	422.00	423.00	1.00	10	47	1.0	5		
6510	428.50	430.00	1.50	32	43	1.0	5		
6511	430.00	431.50	1.50	13	38	0.9	5		
6512	431.50	433.00	1.50	8	27	0.7	5		
6513	433.00	434.50	1.50	9	44	0.8	5		
6514	434.50	436.00	1.50	15	56	1.0	5		
6515	436.00	437.00	1.00	85	55	1.2	5		
6516	491.80	493.50	1.70	19	36	0.7	10		
6517	601.85	603.60	1.75	11	30	0.6	5		
6518	615.40	615.60	0.20	105	25	1.2	5		
6519	620.35	621.50	1.15	36	22	0.9	5		
6520	622.45	622.85	0.40	22	23	0.8	10		

Sample	From (m)	To (m)	Length (m)	SIO2 %	AL2O3 %	CAO %	MGO %	NA2O %	K2O %	FEO %	MNO %	TIO2 %	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	AS PPM	SB PPB	SR %	ZR %	TOTAL %
6976	41.50	44.50	3.00	51.25	17.41	6.72	5.35	3.13	0.06	9.25	0.38	0.70	0.005	1054	46	60	0.5	5	16	3	.04	.005	94.29
6977	78.00	81.10	3.10	53.23	17.44	5.34	5.96	3.40	0.09	8.76	0.36	0.69	0.005	301	68	16	0.7	5	14	1	.03	.005	95.31
6978	348.70	351.70	3.00	55.33	17.30	5.29	4.81	3.66	0.32	8.15	0.23	0.67	0.014	100	28	12	0.6	15	13	1	.03	.005	95.82
6979	376.40	379.50	3.10	54.68	17.11	4.24	6.41	3.48	0.35	9.19	0.23	0.68	0.013	17	38	9	0.4	5	14	1	.02	.005	96.41
6980	401.10	404.20	3.10	55.59	16.63	3.09	5.98	4.26	0.49	9.66	0.19	0.65	0.015	14	33	14	0.5	5	14	2	.03	.005	96.59
6981	446.80	449.90	3.10	57.55	16.73	3.22	5.33	4.24	0.51	8.38	0.17	0.64	0.021	11	30	7	0.3	5	15	2	.03	.005	96.82
6982	477.30	480.40	3.10	51.59	18.06	4.32	5.20	4.38	0.45	11.26	0.27	0.77	0.022	34	48	18	0.7	5	17	3	.03	.005	96.27
6983	526.10	529.10	3.00	52.91	17.30	6.83	5.02	3.10	0.06	9.57	0.32	0.70	0.005	44	41	13	0.9	10	16	3	.04	.005	95.84
6984	568.10	571.20	3.10	54.12	18.28	4.56	4.25	5.10	0.56	8.29	0.22	0.72	0.064	41	60	6	0.6	5	16	2	.03	.005	96.20
6985	606.90	609.90	3.00	53.97	18.01	5.69	5.47	3.58	0.17	8.33	0.26	0.69	0.020	15	31	12	0.3	5	21	2	.03	.005	96.23

MINNOVA INC.

HOLE NUMBER: MTS35 — DRILL HOLE RECORD — IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SIC
PROJECT NUMBER: 305
CLAIM NUMBER: TYEE
LOCATION: NTS 92B/13

PLOTTING COORDS GRID: MTS
NORTH: 540.00S
EAST: 8.00E
ELEV: 476.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 0.00

COLLAR DIP: -90° 0' 0°
LENGTH OF THE HOLE: 266.70m
START DEPTH: 0.00m
FINAL DEPTH: 266.70m

COLLAR GRID AZIMUTH: 360° 0' 0°

COLLAR ASTRNOMIC AZIMUTH: 360° 0' 0°

DATE STARTED: June 26, 1987
DATE COMPLETED: June 29, 1987
DATE LOGGED: 0, 0

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: F. BOISVENU DRILLING LTD
CASING: 0.61m
CORE STORAGE: 6722 LAKES RD, DUNCAN

PURPOSE: TEST MINE PACKAGE NORTH OF L-T DEPOSITS AND THE UP-PLUNGE OF SPH +/- CPY STRINGER MINERALIZATION

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
30.48	-	-90° 0'	ACID	OK		-	-	-	-	-	
60.96	-	-89°30'	ACID	OK		-	-	-	-	-	
121.92	-	-89°30'	ACID	OK		-	-	-	-	-	
152.40	-	-89°30'	ACID	OK		-	-	-	-	-	
182.88	-	-89°30'	ACID	OK		-	-	-	-	-	
213.36	-	-89° 0'	ACID	OK		-	-	-	-	-	
243.84	-	-89°30'	ACID	OK		-	-	-	-	-	
266.70	-	-89°30'	ACID	OK		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
0.00 TO 0.61	CASING					
0.61 TO 96.80	DIORITE, MED G.	Colour - dk green Grain size - fine-coarse Variably vw-s sheared diorite & non-sheared m-c grained diorite, minor weakly FP porph. diorite. Note ilmenite +/- leucoxene rich phases. Heterogenous looking interval.		- M-I irreg calc veins + floods cause a pseudobx appearance locally - vw-w chlz - local qtz +/- calc veins 1-2cm thick		NVS - tr py
		0.61-6.6m: M-I sheared fg diorite pseudobx				
		6.6-9.4m: m-dk green weakly fp porhp. diorite 5-10% fp 1-2mm phenos in f. groundmass				
		9.4-16.3m: m sheared diorite pseudobx, dk green		- m-s irreg veins +/- flooded calc		
		16.3-16.5: off white, leucocratic qtz-FP(?) dyke. 15-20% fg diss specularite top ctc bottom ctc	 20 20	- w chl in gm - qtz vein 2cm through centre		
		16.5-17.9m: m sheared diorite, cataclastic looking f-mg diorite. Dk green		- calc flooded	3-5% diss fg leucoxene	
		17.9-19.5m: m-s sheared diorite pseudobx, dk green + white		- s irreg calc veins + flood		
		19.5-25.7m: dull med-dk green & pale green FP. Locally weakly FP porphyritic. Note 2-5% blk oxides, ilmenite(?) f-mg		- vw-tr sausz of fp phenos - vw chl - loc w calc veins		
		25.7-27.5m: S-I sheared diorite banded + pseudobx dk green-purplish colour. 2-10% blk oxides (ilmenite)		- S-I calc veins + flood	tr py	Banded shear includes dark grey-purple bands with ilmenite(?) and whitish calc bands.
		27.5-29.9m: m green + purplish m-c grained diorite with 10-15% coarse oxide grains (ilmenite?) weakly magnetic		- vw chl/ep		
		29.9-34.3m: similar to above but variably sheared M-I, locally banded. 10% m-cg ilmenite grains shear	 10	- M-I calc flood/veins - w chl +/- ep		
		34.3-35.9m: med-cg diorite similar to 29.9-34.3 10% oxides (ilmenite)		- vw chl/ep		

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		35.9-44.6m: I-m sheared diorite banded + pseudobx 5-10% blk oxides throughout (ilmenite)		- M-I calc as floods & veins		
		shear	15			
		44.6-49.5m: m-dk green mg diorite loc minor shears hb 40%, oxides (ilmenite?) 10%, fp 50% (?)		- w chl/ep - loc calc veinlets + shears		Note poss crude tracytic texture, or weak shear that crudely orientates hb(?) needles
		49.5-50.9m: m-s sheared dk green diorite partial pseudobx 10% blk m-fg oxides (ilmenites?)		- m-s calc veins/flood		
		50.9-54.0m: m-cg, m-dk green +/- white diorite. 10-15% blk oxide (ilmenite?) grains		- w chl - w-m calc +/- qtz veins	1-2% cpy as blebs within rare qtz veinlets 3mm thick at 52.7-53.1m	
		54.0-55.8m: melanocratic mg white + dk green diorite related dyke. 50-60% fp, 30% mafics, 3-5% f-mg oxides (ilmenite?)		- vw chl - m-w calc +/- qtz +/- ep veins		
		top ctc	60			
		bottom ctc	35			
		55.8-57.2m: m-dk green med grained diorite. 5% blk oxide (ilmenite?)				
		57.2-58.2m: melanocratic green + wh phase of diorite. Does not appear to be a dyke f-mg.				
		58.2-59.6m: med grained v weakly sheared dk green diorite similar to 55.8-57.2m		w-m irreg calc veinlets		
		59.6-60.4m: m-s sheared m-dk green diorite pseudobx. 5% blk oxide grains 1mm diss throughout		- m-s calc veins + flood		Note 1-2% <1mm leucoxene grains
		shear	20			
		60.4-60.5m: qtz + calc + chl vein		- qtz vein		
		vein	45			
		60.5-64.3m: m-s sheared mg(?) diorite, med green-grey, 5% blk oxide		- calc perv. flood		
		64.3-67.7m: v dk green s sheared diorite pseudobx. 5% blk oxide w mag (ilmenite?)		- S-I irreg calc vein + flood		
		67.7-69.0m: m-dk green w fp porph diorite. 5% blk oxide (ilmenite?)				
		69.0-69.6m: shear diorite pseudobx similar to 64.3-67.7m				
		69.6-72.2m: mainly med g. melanocratic diorite,		- w ep-qtz veins		

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		but exhibits various phases, apparently not dyke-like. Also note 3-5% blk oxide (ilmenite).				
		72.2-72.6m: m sheared m.g. diorite, m-dk green		- s calc veins + flood		Note 3% leucoxene
		72.6-74.3m: cg mod-s sheared diorite subpegmatitic 5% blk oxide (ilmenite), 10-25% diss c.g. calc., 30% hb, 40% fp		- s calc flood + coarse diss calc cx	tr py	poss leucoxene present
		shear 5-15	5 15			
		74.3-76.2m: med-lt grey-green, mg diorite, s sheared.		- S-I calc flood/veins - massive cg calc 20cm vein		
		calc vein	25	- s irreg calc veins + flood		
		76.2-77.7m: s sheared diorite pseudobx, 1-2% blk oxides ?				
		77.7-79.1m: m-dk green mg diorite. 5% blk oxides (ilmenite?)				
		79.1-80.5m: m-dk green, s sheared, diorite pseudobx. 1-3% blk fg oxides(?)		- S-I calc veins + flood		3% leucoxene drawn out parallel to shear
		shear	15			
		80.5-83.3m: mg, m.green diorite similar to 77.7-79.1, with 1-5cm thick melanocratic dykes(?)				
		dykes 50-70	50 70			
		83.3-85.1m: s sheared dk-m green diorite pseudobx. 3-5% oxides lt brown altered(?)		- S-I calc veins + flood		5% leucoxene(?)
		85.1-90.2m: f-mg weakly fp porphyritic, med green diorite. 3-5% lt brown altered oxides(?), poss leucoxene		- w irreg calc veins		
		90.2-92.5m: s sheared dk green diorite. 5-8% streaky looking lt brown mineral (leucox. or ilmenite)		- S-I calc flood-veins		
		92.5-96.8m: mg, w porphyritic diorite, m green 2-5% blk oxides +/- lt br-cream (same mineral)		- w calc veins +/- hem	First sign of hem at 93.2m as a coating with calc vein. Note blocky core coincident with appearance of hem.	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
96.80 TO 113.70	FAULT ZONE	Colour - dk-med green Grain size - f-med Blocky zone with loc. gouge in ag variably sheared diorite		- variable w-s irreg calc veins + flood - loc w-m qtz +/- calc	NVS	
		96.8-97.8m: ag, dk green diorite. 5% blk oxide slicks 5-40	5 40	- m calc + hem veins		
		97.8-98.2m: m sheared, ag diorite similar to above		- S-I calc irreg veinlets		
		98.2-98.3m: m. green fault gouge				
		98.3-98.5m: similar to at 97.8-98.2m				
		98.5-102.6m: mod. sheared, m green-grey diorite, ag, 3-5% brown mineral (leucoxene or ilmenite) slicks	0 10	- calc flood + loc m-s irreg calc veins		98.5m last sign of hematite.
		102.6-103.9m: similar to above but s sheared shear ?	30			
		103.9-108.0m: dk green s sheared diorite pseudobx. 5% brown ilmenite or leucoxene. slicks	5	- s calc veins + flood		
		108.0-110.5m: similar to above pseudobx, but core v. blocky with local gouge planes.				
		110.5-113.7m: diorite pseudobx similar to 103.9-108.0m				bottom ctc of fault based on better core recovery, & absence of slickenlines.
113.70 TO 193.20	DIORITE	Colour - m-dk green Grain size - fine-med Variably sheared f-mg diorite, also mg w fp porphyritic diorite. Note 2-5% purple-grey oxides + brown altered ilmenite or leucoxene.		- variable W-I calc veins +/- floods - vw-w chl +/- ep	NVS	
		113.7-125.4m: s sheared, dk green diorite pseudobx 3-5% brown (ilmenite or leucoxene) shear	0 10	- s calc irreg veins + flood		
		125.4-126.6m: m-dk green, w fp porphyritic mg diorite. 2-3% blk oxides <1-1mm.				
		126.6-128.2m: dk green diorite pseudobx. 2-5% brown leucoxene(?) or ilmenite		S-I calc veins + flood		

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		bottom ctc	80			
		128.2-134.6m: w fp porhpyritic med. g diorite, m green 2-3% blk-purple oxides				
		134.6-144.6m: s sheared diorite pseudobx, dark green, 2-5% blk oxides & brown alteration, (poss leucoxene or ilmenite)		- S & S-I calc veins + flood	tr cpy at 144.1m	
		shear	30			
		144.6-149.2m: m-dk green w fp porph. diorite, mg, 5% blk oxides (ilmenite?) loc sheared	40			
		149.2-151.8m: f-mg dk green equigran. diorite. Note 5% lt brown leucoxene or ilmenite				
		151.8-168.1m: w fp porph.- fp porph. diorite, m-dk green, gm vf-fg, ave 5-10% fp phenos. 2-5% fg blk oxide (ilmenite)		- w-m calc +/- qtz +/- chl veins	Loc blebs cpy in qtz-calc irreg veins (1% overall) from 156.0-157.5m also 164.5-165.0m	V. blocky core at 152-156m poss fault?
		168.1-168.7m: dyke-like f-mg melanocratic phase with local fp crystal up to 8mm				
		168.7-174.1m: f-mg dk green equigran, loc fp porph. diorite 2-5% fg blk oxides		- w-mod qtz +/- calc	1-3% py in qtz + chl +/- calc veins (1-5mm thick	
		174.1-174.5m: m-s sheared diorite, m-dk green-grey 5-8% blk oxide		- calc flood	- 3% diss fg py	
		shear	40			
		174.5-176.6m: fp porph. diorite, vf-fg fm fp phenos up to 1cm long. 5% blk oxides				
		176.6-176.8m: m-s sheared diorite pseudobx, dk green 3-5% blk oxides.				
		shear	30			
		176.8-178.2m: weakly fp porphyritic diorite, m-dk green. 6m vf-f, 10% 1mm-2mm fp phenos. 3-5% blk oxides - whitish-brown alteration				
		178.2-178.5m: similar to above but includes internal slickenlines	0			
		178.5-180.0m: fp porph. diorite similar to above, minor melanocratic patches.	15			
		180.0-183.6m: m-cg w FP phyric diorite, dk green +				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		white, 5% blk-purple oxides loc altered to whitish mineral. 183.6-184.2m: w fp porph f-mg diorite, m-dk green, 5% fg blk oxides. 184.2-184.6m: s sheared diorite pseudobx, dk green 2-5% blk oxides. 184.6-190.7m: f-mg w fp phyric diorite, m-dk green 2-5% fg blk oxides 190.7-193.2m: f-mg equigran, dk green diorite poss dyke(?). Note 5% dissem leucoxene <1mm grains & loc hem diss up to 5%		 tr py s calc veins + flood loc 2-3% diss fg py parallel to shear - mod calc veins throughout, stockwork texture.		
193.20 TO 196.20	FAULT ZONE	Colour - dk green Grain size - fine-med Fault zone in f-mg diorite, poss dyke phase. V. blocky throughout interval. Note local gouge. (Same as diorite at 193.2m) shear top contact ? bottom contact ?	60	- m calc fract. filling <1-3mm thick -vw chl	NVS	
196.20 TO 198.80	DIORITE	Colour - dk green Grain size - fine-med. Massive, loc s sheared f-mg diorite, also brecciated at contact bottom ctc - bx 196.2-197.5m: f-mg, equigran diorite, 5-10% lt brown leucoxene, (or ilmenite?) 197.5-198.4m: s sheared diorite, med dull green 5% lt brown leucoxene shear 198.4-198.8m: sheared & brecciated diorite(?), dull lt-med green-grey	 45	- m calc veins, loc irreg veins in shear plane + flood - S-I calc is <1mm veinlets + flood - w chl, w bleached - s calc as flood + bx frags. - m chlz (?)	-NVS to 5% py in sheared diorite as blebs & dissem. - 3-5% fg py as blebs, discont. stringers <1mm, and dissem. - 3% py as dissemn.	
198.80 TO 202.50	AND-DAC F. TUFF	Colour - m. grey-green Grain size - v.fine-fine w-m foliated, rel homogen looking and-dac f. tuff Note 2-5% streakly leucox. <1mm throughout (?)		- w/w-m serz +/- chl - m qtz <1-8mm thick veins +/- py	3-5% fg py as diss. + locally as mod <1-1mm thick py +/- qtz stringer c/a 20	Note mislatch at 201.2m Litho: BCD# 6551 199.0-202.0m

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
202.50 TO 202.80	FAULT GOUGE	Colour - vlt grey-green Grain size - v.fine-fine matrix; f-vc frags Fault gouge - milled zone with 2mm grey muddy py band c/a 35 top ctc bottom ctc ?	35	- s ser-clay gouge	-2% dissem py	
202.80 TO 223.50	AND. & DAC F.-ULTRA F. TUFF	Colour - m. green-slight grey also m greyish green Grain size - v.fine + fine M foliated, locally m sheared and tuff with minor minor dac/dac-and f. tuff. The sheared and tuff is flooded with calcite giving it a fg. granular appearance, wh. speckled.		- w-m/s chlz +/- ser throughout, vw-w in sheared tuffs -calc as floods/diss throughout - loc gashlike calc veins +/- ep	- 3-5% py as fg diss in f. tuffs, tr-1% diss py in sheared tuffs.	Note sheared tuff has v. homogeneous appearance.
		202.8-203.6m: Dac F. tuff fol'n	70	- m/m-s serz + chlz	- 5-8% py	
		203.6-205.0m: and-dac f.-ultrafine tuff		m chlz +/- ser	5-8% py	Note most sub-intervals subjective, no clear contacts.
		205.0-206.7m: sheared and tuff shear	10 60	S-I calc flood	1% py	
		206.7-208.1m: and-dac tuff with minor fp cx & tr qtz eyes (?)		vw-w chl/ser	3-5% py	
		208.1-208.5m: and. f. tuff		- w-m chl - m-s calc irreg veins		
		208.5-209.1m: sheared and. tuff		- s calc flood - vw-w chlz	1% py	
		209.1-209.5m: vf and. tuff		-s 1-2mm calc veins at c/a 20	1% py	
		209.5-211.2m: s sheared and. tuff		- calc flood S-I - vw chl	tr py-1% py	
		211.2-213.3m: and-dac f-m tuff with 5% fp phenos, tr qtz eyes (?) bottom ctc, sharp	25	- w ser/chl	3% py	
		213.3-213.6m: and f. tuff or chlz dac tuff		- s calc irreg veins c/a approx. 30 - m-s chlz	1-2% py	
		213.6-215.3m: f. dac-and, crudely laminated ash. fol'n	30	- w ser +/- chl	3-5% py, Note loc py +/- qtz str at 213.7m - 2-10mm, c/a 20 at 214.6m; 2cm py-qtz c/a 15	
		215.3-215.5m: and. sheared f. tuff		- s clac flood/veins - vw-w chlz	Tr py	
		215.5-223.5m: and-dac lt grey- lt. med. green-grey laminated f. tuffs		- w/w-m serz +/- chl loc at 220.8-223.5 m/m-s ser/chl	- 3-8% py mainly as fg dissem., also as 1-2mm py +/- qtz m-s str at 219.6-223.5	Litho: BCD #6552 216.0-219.0m

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		Note narrow qtz phyric 5% <1mm cx ash at 220.2-220.4m fol'n layering ?	 60 60		Generally paralle3l fol'n 60, also 0-10 degrees in m-s serz section. - cpy loc at 217.7m as blebs in qtz-py-cpy str.	
223.50 TO 224.70	RHYODAC-DAC TUFF/CX TUFF STRINGER ZONE	Colour - vlt grey Grain size - aph-vfine matrix; fine cx x-s foliated, rel homogen. rhyodac-dac tuff with 2-3% f. qtz eyes fol'n top ctc 20-25 bottom ctc, sheared 50-55	 0 15 25 55	- w serz throughout - loc silicified(?) by qtz-py str	- 5-15% f-cg py as str & dissem. Qtz-py str throughout (1-1cm thick at S-I ((2cm) density. C/a 0-10	Note no visible cpy. Litho: BCD #6553 223.5-224.7 str. poss cataclatic locally as patches of py within str noted
224.70 TO 230.20	DACITE TUFF	Colour - m-lt green-sl grey Grain size - fine w foliated, re. homog. - crudely laminated tuff fol'n lower ctc with rhyodac qtz eye cx tuffs appears somewhat milled bottom ctc 20-25	 10 50 25	- w/w-m serz +/- chl - w qtz 2-10mm thick veins	3-8% py, ave 5-8% as dissem & py-qtz str. Also (1% cpy as blebs in str. ie)227.2m; qtz-py, 1cm, c/a 15-20 227.8m; py-qtz, 2mm, c/a 80 228.5m; qtz-py, 5mm, c/a 50 229.1m; qtz-py-cpy, 1cm c/a 20 229.6m; qtz-py-cpy, 5mm c/a 25 Note blk chl evn. 230.0m; qtz-py-cpy, 5mm, c/a 40	Cpy as distinct blebs in str. Geochem: BCD #6535 229.0-230.15m 5-8% py, (1% cpy
230.20 TO 258.50	RHYODAC QTZ EYE CX TUFF + minor QTZ-FP CX TUFF	Colour - lt. grey-green Grain size - v.fine matrix; f-c cx Weakly foliated, massive rhyodac bimodal qtz eye cx tuff & minor rhyodac fp-qtz cx tuff. Rel homogenous looking. Qtz eyes 2-8%, (1-1mm & 3-5%, 2-6mm Matrix is v.fine ash 230.2-255.4m: rhyodac qtz eye cx tuff. 255.4-255.6m: rhyodac fp-qtz eye crowded cx tuff 15% 1mm fp cx, 3-5% 1-4mm qtz eyes. bottom ctc 255.6-255.7m: vw fol, dac/dac-and f-m tuff (poss dyke??) bottom ctc 15-20 255.7-256.6m: rhyodac fp-qtz phyric crowded cx tuff. 15% 1mm fp	 20 20	- vw-w serz, loc 2-m ser - m chl as env on qtz-py stringers - weak 1-5mm qtz veins +/- chl +/- py - vw serz - w-m chl +/- ser vw serz	1-5% fg dissem py throughout, ave 3-5% py to 244.0m then 1-3% to 258.5m Loc py +/- qtz +/- chl str ie) 232.7m: 3cm qtz-py-cpy-chl, c/a 20 238.3m; 1-5cm, qtz-py-chl with brecciated margins, c/a 15 252.5m; 3mm, py-chl, c/a 0-5 2% py 5% py 1% py	Note qtz eyes are med grey granular/ fractured looking, and round-oval shape Litho: BCD #6554 242.0-245.0m Gradational to qtz eye cx tuffs

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		5% 1-5mm qtz eyes 256.6-258.5m: rhyodac bimodal qtz eye cx tuff 5% <1-1mm qtz eyes & 5% 2-8mm qtz eyes fol'n	 10 30	- vw serz	tr-2% py	Note some qtz eyes have greenish inclusions, lense-round shape
258.50 TO 259.80	DACITE F. TUFF	Colour - lt-m grey-green Grain size - fine W foliated, rel homogeneous dacite tuff fol'n 20-30	 30	- w serz - loc calc. 1-3mm veins	- 2-3% fg diss py	
259.80 TO 263.00	AND. TUFF/ F. CX TUFF	Colour - m-dk green/ sl grey Grain size - v.fine to fine Vw-w foliated, rel homogenous looking and. f. cx tuff/f. tuff Locally and-dac comp. 15% <1-1mm fp phenos.		- vw chlz throughout - w-m sel epz of fp phenos in cx tuff - tr-vw (<2%) pathcy ep altn, up to 5 x 5mm patches at 261.6-261.8m	2-3% fg diss + blebby py.	Litho: BCD #6555 260.0-262.0m
263.00 TO 266.70	DAC/DAC-AND F. TUFF, minor FP-QTZ PHYRIC CX TUFF E.O.H.	Colour - m-lt green-grey Grain size - v.fine matrix; fine cx M foliated, rel homogeneous f. dac tuff, also fp-qtz phyric cx tuff (?) 263.0-266.0: dac f. tuff 266.0-266.7: dac fp 5-10% 1mm, qtz eye 1-3% <1mm cx tuff (or poss flow?) fol'n	 0 20	- w-m ser +/- chl w serz	3-5% py as fg diss and loc str. Note str at 266.2m; py-qtz, 2mm, c/a 15	

Sample	From (m)	To (m)	Length (m)	GEOCHEMICAL Cu ppm	Zn ppm	Ag ppm	Au ppb		COMMENTS
6535	229.00	230.15	1.15	2820	79	2.2	5		

Sample	From (m)	To (m)	Length (m)	SIO2 %	AL2O3 %	CAO %	MGO %	NA2O %	K2O %	FEO %	MNO %	TIO2 %	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	AS PPM	SB PPB	SR %	ZR %	TOTAL %
6551	199.00	202.00	3.00	56.58	17.32	.45	7.63	3.04	1.32	10.44	.17	.67	.042	78	56	8	0.5	5	5	6	.01	.005	97.67
6552	216.00	219.00	3.00	58.65	17.62	.48	6.94	3.05	1.95	8.24	.18	.66	.072	25	49	12	0.5	5	9	1	.01	.005	97.85
6553	223.50	224.70	1.20	57.64	13.73	.14	1.80	0.38	4.02	19.12	.03	.51	.121	109	23	16	1.4	10	5	2	.01	.005	97.50
6554	242.00	245.00	3.00	69.59	14.64	.23	4.21	2.72	2.04	3.85	.10	.29	.079	5	20	10	0.3	5	1	2	.01	.005	97.76
6555	260.00	262.00	2.00	54.97	18.30	1.7	7.11	4.95	0.26	9.24	.31	.73	.017	157	79	21	0.5	5	5	1	.02	.005	97.61

HOLE NUMBER: NTS-37

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS:
METRIC UNITS: X

PROJECT NAME: SIC
PROJECT NUMBER: 304
CLAIM NUMBER: MORLEY-JAYNE
LOCATION: NTS 92B/13

PLOTTING COORDS GRID: NTS
NORTH: 589.00S
EAST: 389.00E
ELEV: 552.00

ALTERNATE COORDS GRID: FIELD
NORTH: 5+89S
EAST: 3+89E
ELEV: 552.00

COLLAR DIP: -50° 0' 0"
LENGTH OF THE HOLE: 227.69m
START DEPTH: 0.00m
FINAL DEPTH: 227.69m

COLLAR GRID AZIMUTH: 360° 0' 0"
COLLAR ASTRNOMIC AZIMUTH: 360° 0' 0"

DATE STARTED: July 1, 1987
DATE COMPLETED: July 3, 1987
DATE LOGGED: 0, 0

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: F. BOISVENU DRILLING LTD.
CASING: 2.13M
CORE STORAGE: 6722 LAKES ROAD, DUNCAN

PURPOSE: TESTS THE SHALLOW DIPPING MINE PACKAGE BELOW A STRONG IP CHARGEABILITY AND RESITIVITY ANOMALY

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
30.48	-	-50° 0'	ACID	ok		-	-	-	-	-	
60.96	-	-46° 0'	ACID	ok		-	-	-	-	-	
91.44	-	-44°30'	ACID	ok		-	-	-	-	-	
121.92	-	-44° 0'	ACID	ok		-	-	-	-	-	
152.40	-	-42°30'	ACID	ok		-	-	-	-	-	
182.88	-	-41°30'	ACID	ok		-	-	-	-	-	
213.36	-	-41° 0'	ACID	ok		-	-	-	-	-	
227.69	-	-40° 0'	ACID	ok		-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
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LOGGED BY: M.J. GRAY

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
0.00 TO 2.13	CASING					
TO 118.00						
2.13						
2.13 TO 3.70	NO BARREL					STARTED BARREL AT 3.7M
3.70 TO 6.30	RHYODAC FP +/- QP CX T. (MAFIC CLOTS/ FRAGS.)	Med. green-grey Aph-vf. ax , f cx, l-frags Weakly foliated, rel. homogeous mottled rhyodac fp. cx. t. with lensoid mafic (?) clots 2-8mm, frag? or non-silicified remnants. Fp ~5% <1mm, qtz eyes, trace <1mm. foliation	 30	- tr ser/chl, weak chl of mafic frags - poss. silicified? due to mottled texture but litho does not support this	1% fg. diss py, Note 1 py +/- chl +/- qtz str(?) at 4.6m, 2 cm, c/a 55-60 degrees	Litho: BD #6626 3.7 - 6.0m
6.30 TO 7.20	RHYODAC QP CX T OR DYKE	White-light grey Aph-VF ax, f-m cx VW foliated, rel. massive/mottled rhyodac dyke or CX T. Bed. includes 5% <1-1mm qtz eyes, 5% 1-2 mm ser'z greenish phenos or amygdules (?) top CTC ? bottom CTC	 45 80	- trace ser-chl, ser.	1-2% py.	rel. sharp lower CTC therfore poss. a dyke
7.20 TO 16.60	RHYODAC F CX T, MINOR LAPILLI T.	light green-grey Vf-M, f-cx, l-frags VW-W foliated, rel. massive loc. mottled rhyodac fine FP +/- quartz eye cx t, minor Lapilli tuff. Poss. mottled areas a siliceous tuff. foliation (30-70) 7.2 - 11.0m Rhyodac T/F CX T, 10% <<1mm FP, trace qtz eyes <1mm 11.0 - 11.7m top CTC Rhyodac Lap T - lapillistone, ax supported, 20-30% rhyodac, tuffaceous chert vaguely defined	 60 45	- VW-W ser +/- chl - VW calc & quartz veins - poss. silicified in mottled sections	1-2% py, loc. fg. 3-5% py, i.e., 12.7 -12.9 m	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		2-10mm, ave. 4mm fragments 11.7 - 14.1m mottled rhyodac F.T/fine FP <<1mm phyric CX T - siliceous tuff. 14.1 - 15.6m Poss. rhyodac dyke (?) similar to 6.3 - 7.2m Top and bottom CTC's not clear, but distinctly wh-lt grey and finely qtz phyric 2-5% <1mm qtz eyes 15.6 - 16.6m Rhyodac F.T./F FP CX T, poss. siliceous T, simil. to 11.7 - 14.1m				
16.60 TO 17.70	FAULT	Light grey-green Fine Fault gouge and blocky core Top CTC Bot CTC ?	 45	- s ser-clay	Trace py	
17.20 TO 18.10	RHYODAC CX T OR DYKE	Light grey-green Aph-VF Mx, F-CX VW-W foliated, rel massive, mottled. Rhyodac FT/CX T (siliceous), or poss. dyke though not massive enough Bottom CTC 55-60 deg. sheared Foliation 60-70 degrees	 60 65	- trace ser/chl - silicified?	1-2% MG py diss.	
18.10 TO 18.50	DIORITE (or AND TUFF)	Dark green Fine W-m sheared fine grained diorite (?) local pseudobx texture (poss and tuff?) Top CTC Bot CTC	 70 55	- W/W-M chl - M-S calc as gashlike veins & irreg. veins - VW sel EP	Nvs	
18.50 TO 18.60	QTZ VEIN	White and dark grey Aph-fine Quartz veins with silicified (?) wallrock - Fine grained/aph. dark grey. Veins show crude banding poss. siliceous exhalite??? Bot CTC Banding	 50 50	- M calc <2mm veins - S qtz veins as milky // to fol'n ? - dark grey areas silicified wall rock?	3-5% py fG diss. + diss. in bands C/A 50 degrees <1% CPY as discrete irreg. blebs	Crude banded look, very hard, with fine grained py and cpy. This is not a typical qtz vein therefore potentially a siliceous exhalite. Note cherts/exhalites in MTS-31,32 near dior Ctc's.

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
18.60 TO 20.90	DIORITE	Medium-dark green VF-F Massive, weakly foliated fine grained equi-granular dior. M-S sheared and calc. veined near CTC's. Contact area has a FP phyric dyke, irregular, 40 c/a at bot (dyke at 20.8 - 20.9m) Bot CTC ?	50	- W chl. - VW sel EP - M-S loc. calc veins and flood	trace -1% py	
20.90 TO 22.40	AND. F. TUFF, MINOR CX TUFF AND COARSE TUFF	Medium green VF, F-CX Crudely layered, weakly foliated and F. tuff, minor (5%) FP (10% (1-1mm) CX tuff layers, also coarse tuffs with loc. 2-4mm lapilli fragments. Foliation Bot. CTC ? Layering ?	45 60	- mod chl'z Th-o - W - loc strong calc veins <1-3mm - loc qtz-EP-Py vein at 22.1-22.5m c/a 60 degrees	2-3% py diss. Th-O, loc M-CG py associated with qtz-ep vein (3-5%)	
22.40 TO 25.90	DAC F. TUFF	Medium - light grey VF-F Mod foliated, crudely laminated dac f. tuffs. aphyric Foliation BTC CTC broken-up Layering ?	45 50 70	- W/W-M ser'z +/- chl. - W qtz +/- calc. veins 1-3mm thick	3-5% py as fg-mg diss'n and small blebs	Poss. loc siliceous tuff
25.90 TO 26.30	DIOR DYKE (OR AND CX TUFF)	Dark-medium green VF GM, f cx vw-w foliated, homogeneous sheared dior. FP phyric dyke or And. CX tuff Bot CTC ? Foliation	35 45	- W chl'z - S-I calc flood and veins	2% diss f/g py	
26.30 TO 27.20	DAC F. TUFF	Medium-light grey VF Mod foliated, crudely lam. Dac F. tuff, similar to 22.4 - 25.9m Trace qtz eyes		- M ser'z +/- chl.	- 5-8% py as f-mg dissem'n, also py-chl +/- cpy blebby stringers 1mm thick C/A 40-45 degrees	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
27.20 TO 27.50	AND-DAC TUFF	Medium-dark green VF-F Moderately foliated, banded And-Dac T (poss. some dior. present) Top CTC 30-35 Layering ? Bot CTC	 30 80 45	- W/W-m chl - M-s irreg 1-3mm calc veins +/- quartz +/- chl.	2-3% FG diss. py.	
27.50 TO 33.60	DAC F. TUFF	Light-medium grey, SL Green Very fine M. foliated Dac F. tuff, crudely laminated trace qtz eyes, rel. homogeneous aphyric tuff Foliation (40-65)	 40	- W-MS Ser'z i.e. 27.5 - 29.0 m/m-s 29.0 - 33.6 w-m - W qtz 1-5mm veins +/- ser +/- py +/- cpy	3-8% FG diss Py, and 1-3mm thick blebby str. W-M (1str/10 cm) density with py +/- qtz +/- cpy <1% cpy. ocurs as blebb with in the stringers * .5% cpy th-o C/A 40-45 degrees	Geochem: BCD #6576 27.5 - 29.0m approx. 0.1% Cu
33.60 TO 35.50	AND F. TUFF (OR AND. DYKE?)	Medium-dark green VF-F Well foliated/sheared, rel. homogeneous and f. tuff. Top CTC, sheared Bot CTC Foliation 50-60	 40 45 55	- M-S chl'z - S gashlike 2 x 20mm calc veinlets gen // fol'n/shear	3% diss fg py	Sim to F. And. tuffs seen elsewhere in the mine package
35.50 TO 45.20	DAC F. TUFF AND INTERLAM SILICEOUS TUFF (with STRINGER PY-CPY)	Light-medium grey VF-F W-M foliated, poorly laminated Dac. ash and interlam siliceous tuff. Rel. homogeneous looking aphyric tuff. Note interlam tuff and siliceous tuff at 39.9 - 42.0 m. Beds 5mm - 3cm thick, ave. 2cm Foliation (40-60) Layering 50-55 Bottom CTC grad.	 45 50	- W-M loc M/M-s Ser'z ie. 35.5 - 38.0 W-M 38.0 - 40.0 W 40.0 - 42.0 W-M 42.0 - 45.2 M/M-S - loc mod. qtz 2cm thick milky white veins	- 3-8% py, ave 3-5% as FG diss. & blebby coarse grained stringers 1-4 mm thick - Cpy <1% Th-o, locally 2-3% i.e: 35.5 - 39.1 trace <1% cpy 39.1 - 40.3 <1% cpy 40.3 - 41.3 nil - tr cpy 41.3 - 43.1 2 cpy 43.1 - 44.0 <1% cpy 44.0 - 45.2 nil - tr cpy Str at CA 35-50 degrees	Note: sulphide str. are subparallel to foliation. Litho: BCD#6627 36.8 - 39.5 Geochem: BCD #6577 39.5 - 41.0 5% py .1% Cu Geochem: BCD #6578 41.0 - 42.0 3-5% py, .5% Cu Geochem: BCD 6579 42.0 - 43.0 3-5% py, .5% Cu Geochem: BCD #6580 43.0 - 44.5 3-5% py, 0.1% Cu

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
45.20 TO 46.20	DAC FP PHYRIC CX TUFF	Light-medium green-grey Aph-mx, vf-f cx Weakly foliated "bed" of FP phyric Dac(?) CX tuff. 35% <1-1mm FP CX in a light grey/green aph mx. Foliation Layering ? Bot CTC - grad.	 70 65	- VW Ser.chl - W sel EP'z DF FP phenos	1% py diss. fg	Poss dyke, but CTC relationships suggest this is a bed.
46.20 TO 53.40	DAC-RHYODAC F.TUFF	Light grey VF-f W-m foliated, rel homog., crudely to poorly laminated Dac F. tuff, trace qtz eyes with minor FP phyric layers over 5-10 cm (Dac). Interval similar to 35.5 - 45.2 m Foliation 30-45 Layering ? Bot CTC, sharp	 35	- W-M ser'z th-o, i.e., 46.2 - 48.0 w-m 48.0 - 53.4 w	- 3-5% py th-o mainly as FG diss'n, also as str with F-CG py diss'ed within. - Nil -1% cpy, ave tr blebby irreg. cpy within stringers, ie., 46.2 - 47.2 <1% cpy 47.2 - 51.2 Nil - tr cpy 51.4 - 52.0 1% cpy 52.0 - 53.4 nil trace cpy C/A (30-45) (stringers) (51.65 - 51.95; 2% cpy)	Geochem BCD# 6581 46.2 - 47.7 m Geochem BCD# 6582 47.7 - 49.2 m Geochem BCD# 6383 49.2 - 50.7 m Geochem BCD # 6584 50.7 - 52.0m
53.40 TO 53.80	DAC-AND TUFF	Medium - light Green/grey Very fine M. foliated; bleached Dac-And, loc silicified(?), tuff Bot CTC ?		- VW ser/chl - mod qtz (?) +/- EP veins with silicified Env(?) - w bleached	- 2-3% diss. FG py	Poss a narrov interval of qtz-EP-Chl alteration in above rocks
53.80 TO 60.60	DAC-RHY.F TUFF (MINOR AND DYKES)	Light grey - slightly green Very fine Weakly foliated, homogeneous - crudely laminated Dac-Rhyodac fine tuff. Similar to above. Dac-Rhyodac aphyric tuffs. Bot CTC shear Fol'n 45-60 degrees Note And dykes at 55.3 - 56.7m; C/A 10-15 degrees	 40 50	- VW-W ser'z	- 3-8% py, ave 3-5% mainly diss. F-CG, also stringer Py + Cpy as diss'ed grains in stringers and irregular patches with in stringer. - loc trace -2% cpy as irreg. blebs i.e.) 53.8 - 55.2 tr -<1% cpy 55.2 - 56.0 1-2% cpy 56.0 - 57.6 nil cpy 57.6 - 60.6 tr -<1% cpy str C/A 35 degrees (35-45)	Geochem BCD# 6585 55.1 - 56.1; 3-5% py, 5% Cu

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
60.60 TO 63.80	RHY. QP CX TUFF or QP DYKE	Light grey-sl. green Aph ax, m-c cx Weakly foliated, massive qtz eye rhyodac CX tuff. Qtz eyes 10-15% 1-5mm, ave 2-3mm. Local internal shear/gouge at 61.0 - 61.3 62.6 - 62.7 Bot CTC sheared	35	Trace ser'z	- 1-3% fg diss py th-o, loc str py +/- cpy, i.e at 60.7 - 60.9; 1 mm, py-cpy <1% c/a 70 deg and 35 deg 61.8, 4 mm, py, 1% cpy over 20 cm C/A 80 deg	Poss QP dyke? rel homogeneous/ massive Geochem: BCD# 6586 61.3 - 62.3 m
63.80 TO 69.00	DAC F. TUFF, MINOR SILIC. TUFF (?)	Light-medium grey-sl. green Very fine W. loc moderately foliated, massive f. Dac tuff. Similar to above Dac F. aphyric tuffs Note: trace bright green mica at 68.4m, 66.5m Foliation 45-50 Bot CTC rel.sharp	45 80	- VW-W ser	3-5% diss py th-o loc 5-8% at 65.3 - 65.8m. Also py +/- cpy stringers with weak (1str/15cm) density C/A 50-60 deg, 1-3 mm Loc cpy tr -<1% cpy, i.e. 63.8 - 64.3; tr cpy 65.3 - 65.5; <1% cpy 67.7 - 68.0; tr cpy	Litho: BCD #6628 64.0 - 67.0
69.00 TO 69.50	TUFFAC. CHERT/ CHERT WITH AND. PX PHYRIC DYKES	Medium-dark grey - sl. green Aph., VF inclusions Massive, trace foliation, aph. tuffaceous chert with And. px (10%) phyric dykes at 69.5 - 70.1 m c/a 5-30 deg. and 70.3 - 70.9 m c/a 45 deg. Bot CTC grad Top CTC rel. sharp	80	- trace ser/chl along fol'n planes	- 3-5% dissem. fine grained py - 3% py in dykes	Note: very fine grained whitish inclusions in the chert
71.00 TO 73.60	RHYODAC-DAC F. TUFF	Light-medium Grey and light green-grey Very fine loc aph. Weakly foliated, crudely lam. rhyodac F, tuff/very fine qtz eye cx tuff, 5-10% <1mm round qtz eyes Bot CTC Fol'n	60 60	- VW ser'z	- 5-8% fine grained - med. grained py as dissem & discont. str. - locally trace <1% cpy at 71.8 - 71.9m tr cpy 72.2 - 72.5m <1% cpy	Note: Bot CTC broken up, appears to have light-med. green dyke or bed at it c/a 60 deg.
73.60 TO 74.60	DAC-RHY F. TUFF/ F. QTZ EYE CX TUFF	Light green-grey Very fine aph. Weakly foliated, loc mod. sheared Dac-rhyodac qtz-eye CX tuff. Similar to above but apears to have vague cherty tuff bands and no conspicuous qtz eyes Bot CTC ?		Trace ser +/- chl.	- 3-5% py fine-med.grained as diss'n str <1mm coating fractures	This interval a distinct green and includes minor cherty tuff

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		Minor shear/gouge at 74.3 m Dark grey mud				
74.60 TO 75.10	FAULT GOUGE	Dark green and med. grey Fine mx, f-vc frags Fault gouge/sheared section, includes clay-mud gouge - milled Bx and dark-med green ser-chl sheared shear 65-35 deg bot CTC	 50 35	- S ser +/- chl - clay (?)/mud in gouge sections - loc S-I calc as bands // shear	- 2-3% py as fine grained diss + discon stringer	
75.10 TO 91.00	DAC-RHYO F. TUFF, MINOR SILICEOUS TUFF, F FP CX TUFF	Light green - grey Aph-F Massive-crudely laminated, Very weak-weakly foliated, Dac-Rhy tuffs, fp CX tuffs, siliceous tuffs 75.1 - 77.5m crudely laminated layering siliceous Dac-rhyodac tuffs & dac tuffs Note minor shear planes Th-O 77.5 - 78.7m W-loc M/S sheared/foliated Dac-rhyodac F. tuff + minor cherty tuff (?). Minor 1-5 cm gouge planes/sections Th-O 78.7 - 80.8 Very weakly foliated somewhat massive looking fine qtz phyric (2-5% <1-1mm) foliation rhyodac tuff, whitish grey. Layered? or just colour variations due to foliation layering ?50-55? 80.9 - 91.0m Dac-rhyodac very light green-grey fine qtz eye (2-8% <1-1mm) Cx tuff, w foliated, locally fp (1-2%, 1mm) phyric, localy banded? Local S shear <10cm sections, minor gouge gouge 45-60	 40 70 50 50	- variable trace - M ser'z - loc w qtz +/- calc veins - VW ser in siliceous bands, W-M in tuffs - v-loc M-S ser'z +/- chl - m calc +/- hem veins <1-2mm thick - trace ser'z - w bleached ? - VW-w ser'z, loc S. ser +/- chl in gouge + at 87.0-87.8 v-m ser, 84.4 - 85.0 s.ser - loc W ep sel	- tr-3% disseminated py, minor str., ave <1% py - 1% dissem. py, loc narrow 1mm discon stringer, C/A 1-3% py as fine grained diss and locally py-chl +/- qtz stringers i.e. 77.7; 1 cm, py-chl-qtz, C/a 60 deg 78.1; 5mm qtz-py-chl, c/a 45 deg 1-3% py as 1mm discon str, and dissem'n <1-3% py as diss + stringers, ie 85.0; 3mm py=chl, c/a 45 deg 87.5; 5mm, py-qtz, c/a fold 75deg 88.5; 3mm, qtz-py, c/a 70-80 deg	Note Hem reddy-orangey fracture coatings at 79.0 - 79.8m Litho: BCD# 6629 87.0 - 90.0

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
91.00 TO 91.70	FAULT/ S SHEAR	Light green-grey Very fine - fine Milled-up shear/fault, minor 1-2 cm gouge planes Bot CTC	 70	S ser'z th-0 +/- clay	1-3% py as diss + stringer parallel to gouge planes 20 deg and 70 degrees c/a	
91.70 TO 93.50	DAC F. TUFF	Light-medium green-grey Very fine-fine W-m foliated, rel homogeneous aphyric tuff-Dac layering?	 30	- W-m ser'z	< 1-2% fine grained diss py	
93.50 TO 101.30	DAC-RHYODAC F QTZ +/- FP PHYRIC CX TUFF	Light green-grey Very fine mx, f cx Weak loc M foliated, rel homogeneous Dac-rhyodac qtz +/- FP phyric F CX tuffs. Qtz eyes 2-5% ave 2% <1-1mm FP phenos 0-3%, 1mm Bot CTC sharp	 40	- variable W-S ser'z, i.e. 93.5 - 94.5 w-m 94.5 - 95.0 s ser 95.0 - 101.3 m-w ser	- tr -1% diss py - loc 5% py as str at 94.4m, 2 cm, py, c/a 40 deg	Note Bot ctc sharp with diorite
101.30 TO 106.40	DIORITE	Dull medium green Fine - medium Diorite variably sheared, fg & FP phyric phases 101.3 - 101.5 very fine grained chill 101.5 - 102.6 S. shared fine grained diorite calc flooded Bot CTC sharp Shear 102.6 - 105.2m FP phyric, weakly sheared/foliated fine grained mx mottled texture 25-30% 1-2mm FP CX 105.2 - 106.2m fine grained w-m sheared diorite. Local pseudo bx 106.2 - 106.4m very fine grained chill	 70 45	- VW-w chl - S-I calc flood/veins in sheared diorite - w-m calc veins - m-s calc veins/flood	NVS - <1% py	 5% leucoxene ? 5-10% leucoxene streaky grains
106.40 TO 115.40	DAC-RHYODAC F. TUFF/ F CX TUFF	Light green-grey Very fine mx, f cx W-m foliated, crudely banded locally, Dac-rhyodac F tuff/qtz +/- FP phyric CX tuff.		- variable VW-M/S ser'z, i.e. 106.4 - 108.6 VW-M 108.6 - 111.1 M-M/S 111.1 - 114.5 W. ser 114.5 - 115.4 W-M	trace <1% py, loc py +/- qtz +/- chl stringers, i.e. 106.9m; 3mm, qtz-py, c/a 70 deg 112.5m; 1cm, py-chl, c/a 30 deg 113.5m; 5mm, py-qtz-ep, c/a 80 deg	Litho: BCD#6630 109.5 - 112.5

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		Somewhat mottled look. Qtz eyes 2-5%, ave 2%, <1mm FP phenos locally 3-5% <1-1mm i.e., at 106.4 - 108.5 113.0 - 114.0 m foliation 35-40	40		115.7m; 2cm, qtz-chl-py, c/a 50 deg	
115.40 TO 116.70	FAULT	Very light grey-green Very fine-fine, fragments coarse Fault gouge/BX, milled-up top CTC bot CTC ?	45	- ser-clay	trace py	
116.70 TO 118.40	DAC. RHYODAC F. TUFF	Light green-grey Aph-F Well foliated, massive looking aphyric (trace quartz eyes) rhyodac tuff foliation	40	trace VW ser'z	trace py -1%	note calc +/- hem.
118.40 TO 118.60	FAULT (WITH DIORITE DYKE)	Medium and light green VF and M Fault with diorite (FP phyric) (?) shear/gouge bot CTC	65 60	- clay/mud-hem in gouge	- 3-5% diss. fine grained py.	
118.60 TO 131.40	RHYODAC -DAC F. TUFF/ LOC F CX T. (MINOR SILICEOUS TUFF)	Very light green-grey loc light green Aph-F VW-M foliated, rel. homogeneous looking rhyodac F. tuff/F CX tuff, minor siliceous tuff bands. Generally aphyric, loc has FP phyric layers, trace qtz eyes foliation 40-60	50	- variable tr-m ser'z, i.e., 118.6 - 122.0 VW-W 122.0 - 123.8 tr loc M 123.8 - 131.4 tr VW Loc W-M	- trace -<1% py overall	minor gauge/shears c/a 60 deg. th-o poss. fault zone starts at 116.6m, blocky section
131.40 TO 139.30	FAULT ZONE	Light grey to light-medium grey-green Very fine-fine, loc. aph Fault zone, very blocky section of M-S foliated/ sheared Dac. F - coarse tuffs, minor FP phyric CX tuffs, intermittent gouge (1 cm - 30 cm) th-o, also minor siliceous tuff. shear gouge (30-80)deg.	60	- variable tr-s/I ser'z +/- chl. i.e. 131.4 - 133.2 S ser 133.2 - 135.6 tr ser 135.6 - 137.2 M-S ser 137.2 - 137.6 tr ser 137.6 - 139.3 W-M ser	- 1-3% py FG, ave. 1%, loc 2-3% as blebby str. +/- qtz +/- chl. i.e. 136.3m; 2mm, py-chl, c/a 80 deg. 138.0m; 5mm, py-chl, c/a 40 deg.	End of fault zone subjective

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
139.30 TO 141.70	DAC-RHYODAC QFP, MINOR DAC T.	Medium-light grey Very fine ax. F-C CX Weakly-mod foliated, rel. homogeneous looking rhyodac qtz eye (3-5%, <1-4mm), FP (1-5%, ave. 2%, <1-1mm) phyric cx t. bot CTC ? foliation 35-40 Note Dac F. tuff at 141.2 - 141.70	35	- M-S ser'z th-o - M qtz and calc 1-3mm thick veins	- <1-loc 3%, py, mainly fine grained dissem, localy up to 3% as blebs and irregular shaped patches	
141.70 TO 142.50	AND. or DIORITE DYKE	Dull medium-light green Very fine Mx, f-m cx(?) V weak-weakly foliated, massive fine grained-very fine grained diorite? or And. dyke. Calc flooded locally, apears to be fine grained FP and light green chl. bot CTC sharp	45	- W ser/chl'z - M 1-2mm cal +/- qtz veins, also loc flooded (perv.) calc.	- 1-3% py as blebs and patched within calc. stringers	
142.50 TO 155.30	QUARTZ MONZONITE	Very light grey-sl. green Fine-very fine Massive, trace foliated qtz monzonite dyke with 3% mafic chl'z CX(?) throughout. Very homogeneous, equigran, poss 15-20% qtz. Locally FP phyric @ 154.6 - 155.3m with very fine grained aph. GM top CTC sharp bot CTC ? Note: Light-medium green dykes? Vaguely FP phyric, but not diorite @ 147.4 - 148.0m 154.9 - 154.95 154.95- 155.05m	45 30	- W calc <1mm veinlets c/a 90 and 45 degrees	- trace py	not a good igneous equigranular texture, but massive with evenly distributed mafic CX Litho: BCD# 6631 143.0 - 146.0 (Litho for comp)
155.30 TO 160.00	DAC-AND F. TUFF	Medium green Very fine + fine M-S foliated, homogeneous looking Dac-And. fine tuff, with 1% scattered <1-1mm quartz eyes foliation 0-10	5	- M-S chl/ser'z, loc W-M chl/ser'z i.e. 155.3 - 158.4m; M-S 158.4 - 160.0m, W-M	1% loc 3-5% py as blebs 2 x 3mm and M-CG, i.e. 155.3 - 156.1m; 3-5% py	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
160.00 TO 185.80	RHYODAC -DAC. F. TUFFS/f QTZ EYE CX TUFFS	Light green-grey Light green-grey - should be grain size? Medium foliated, rel. homogeneous section of fine Dac-rhyocac tuffs with local scattered <1-1mm qtz eyes. foliaton (20-60 deg) bot CTC ?	30	- variable W-M/S ser - W qtz +/- calc veins throughout, loc M - Loc EP, very light green <5mm patches prox. to qtz veins	- 1-3% py, ave <1-1% fine grained diss. py. loc. 3% py as 1-2mm str. over narrow intervals (see below)	
		160.0-164.7 Dac fine tuff 1-2%, <1-1mm qtz eyes, light green. foliation 25-40	35	- w-m ser'z 160.0-162.5m - m-s ser'z 162.7-164.7m	- <1-3% py. Py as idss'n and minor stringer, i.e. 164.0m; 1cm, qtz-py, c/a 60 deg.	
		164.7-168.2 Rhyodac very light green-grey fine tuff, bleached?		- w ser 164.7-167.2 - m-s ser'z 166.2-168.2m	- <1-2% py, i.e. 166.6m; 2mm, py, c/a 50 deg.	
		168.2-170.1m Dac fine tuff light/light-medium green-grey, 1-2% <<1mm qtz eyes.		- m-s ser'z throughout	- <1% py	
		170.1-174.7m Dac-rhyodac fine QFP cx tuff, very light green-grey-white 5-15% <1mm FP< 1-3% loc. 5-8% <1-1mm qtz eyes.		- w-m ser'z	- <1-1% py. - Note stringer @ 174.4m, 1-2mm, chl-py, c/a 25 deg.	Litho: BCD #6632 171.1-174.0m
		174.7-181.6m Rhyodac fine tuff, light green with 1-2% qtz eyes <1-3mm (ave 1-2mm) scattered throughout.		- w-m/s ser'z i.e., 174.7-178.0 M-S 178.0-181.6 W-M	- 1-3% py, ave, 2% py as narrow <1-2mm stringer @ W-M (1/5-10cm) density str. are py +/- chl +/- qtz. Typically 1-2mm, py-chl +/- qtz and c/a 70-60 deg	
		181.6-185.8 Dac. fine tuff, light-med green-grey foliation	40	- W-M ser'z	- 1-3% py, fine grained, as blebby dissem'n and narrow str. discon. weak density, i.e. 182.3m; 1mm, py-chl, c/a 40 deg. parallel fol'n, typical.	
185.80 TO 188.80	DAC-AND. FINE TUFF	Medium green-grey Very fine-fine M-W foliated, rel. homogeneous looking Dac-ANd F. tuff. foliation	50	- S ser/chl'z	- 1-3% py diss fine grained and stringer trace loc. cpy. i.e. 187.8m; 3mm, py-ser, c/a 40 deg.	Litho: BCD #6633 185.0-188.5
188.80 TO 204.90	DAC-RHYODAC F. TUFF/ MINOR QTZ EYES	Light green-grey Very fine-fine M. foliated, homogeneous looking Dac-Rhyodac F. tuff with local f. <1mm qtz eyes 1-5%. Note local siliceous tuff bands (white-light grey)		- variance W/M-S ser +/- chl, ie 188.8 - 190.8m W-M 190.8 - 192.5m S 192.5 - 194.1m W-M 194.1 - 196.7m M-S	- <1-2% py, ave. <1-1% FG diss. py, local py +/- qtz +/- chl str. i.e. 189.0m; 1cm, py-qtz-chl, c/a 45 deg 191.6m; 1cm, qtz-py-chl c/a 45 deg	Rel non-descript homogeneous section

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		at: 196.2m foliation (30-80 deg	70	196.7 - 202.0m S/S-M 202.0 - 204.9m W-M - VW qtz 2-10mm veins th-o	197.6m; 2cm, py-chl-qtz c/a 70 deg	Litho: BCD #6634 197.0 - 200.0
		Note local shears at 201.50 and 203.1 (clay-ser'z)				
204.90 TO 207.10	DAC-AND F. TUFF	Medium green - sl. grey Very fine-fine M-S foliated, rel homogeneous looking Dac-And F. tuff, locally (206.9 - 207.1m) qtz phyric (1-3%, <1mm) Dac F. Cx T. foliation	65	- W/M-I ser. ave. M-S th-o - irreg local folded? qtz veins 2-20mm	- 1-3% py diss FG	
207.10 TO 213.50	DAC- RHYODAC F. TUFF	Light green-grey and very light grey Very fine-fine M. foliated, homogeneous - locally banded Dac-Rhyodac F. tuff, locally 1-3% <1mm scattered qtz eyes. Bands are 3-10mm thick // foliation, poss. alt'n vs compositional foliation	55	- variable W/M-S ser'z, i.e. 207.1 - 207.4m; W-M 207.4 - 213.5m; S-M - VW-W qtz +/- chl +/- EP 2-10mm veins	- trace -2% py, ave <1% fine grained py as diss. and local minor str. - 2-3% blebby cpy in str. local over 10 cm, i.e., 213.1 - 213.2m; 1-3mm, cpy-py, C/A 40 and 65 degrees	
TO 237.40	FINE TUFF	Very fine-fine M-S foliated, rel. homogeneous looking Dac-And F. tuff foliation	50		stringer trace loc. cpy. i.e. 187.8m; 3mm, py-ser, c/a 40 deg	185.8 - 188.5
213.50 TO 225.56	AND-DAC F. TUFF, MINOR DAC T & SILICEOUS	Medium green Fine-very fine W-M foliated, massive looking - locally banded, And-Dac F. tuff. Top of interval inter layered And-Dac and Dac tuffs foliation (55-70) deg (45-80) deg Bot CTC 35 or 65 deg 213.5 - 215.50m interlayered And-Dac F.T. with light green/grey Dac T. or sil FN bands, weakly bleached layering 35 and 65 deg 215.5 - 222.3m And-Dac F.T. m. green 222.3 - 222.6m		- W-M chl'z +/- ser, i.e. 213.5 - 215.2 M 215.2 - 217.5 W 217.5 - 220.0 W-M 220.0 - 220.6 M 220.6 - 222.3 W-M 222.3 - 222.6 I 222.6 - 225.56 W-M - VW (-<5%) patchy pale green/ beige epidote balls 2mm - 2cm. - Silicification? as bands/veins // foliation at 215.5 - 215.5m, medium density, bands do not have sharp walls/margins. Also discon. bands/lenses.	- 1-3% fine-med grained diss py, ave 1-2%, also local str py +/- qtz +/- chl /- FP +/- cpy (tr),// foliation, i.e. 213.8m; 3mm, qtz-py, c/a 60 deg 213.9m; 3mm, py-qtz-cpy c/a 55 215.8m; 2mm, py-EP-qtz, c/a 70 deg 215.9m; 3mm, py-EP, c/a 70 deg 218.0m; 3mm, py-qtz, c/a 45 deg	Litho: BCD#6635 218.5 - 221.5m

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		fault gouge, clay-chl-ser, medium-light green 222.6 - 225.56 And-Dac medium-dark green fine tuff bot CTC 35 or 65 deg		- W-M calc +/- qtz veins		
225.56 TO 227.69	QUARTZ MONZONITE	Light grey Fine VW-W foliated, massive, quartz monzonite dyke, fine grained with 5% stretched 1-2mm mafic CX. GM is very fine-fine grained qtz-FP foliation END OF HOLE	45	- M sel chl of mafic CX - W-M 1-3mm calc +/- qtz veinlets	- <1-1% diss. fine grained py	Upper CTC chill?, irregular SL bleached

Sample	From (m)	To (m)	Length (m)	GEOCHEMICAL Cu ppm	Zn ppm	Ag ppm	Au ppb		COMMENTS
6576	27.50	29.00	1.50	475	192	0.8	15		
6577	39.50	41.00	1.50	430	63	0.5	5		
6578	41.00	42.00	1.00	415	84	0.6	10		
6579	42.00	43.00	1.00	1230	76	0.9	20		
6580	43.00	44.50	1.50	380	74	0.4	10		
6581	46.20	47.70	1.50	300	79	0.4	5		
6582	47.70	49.20	1.50	405	60	0.4	10		
6583	49.20	50.70	1.50	141	50	0.2	5		
6584	50.70	52.00	1.30	420	49	0.4	5		
6585	55.10	56.10	1.00	360	48	0.6	10		
6586	61.30	62.30	1.00	1660	43	0.6	15		

Sample	From (m)	To (m)	Length (m)	SIO2 %	AL2O3 %	CAO %	MGO %	NA2O %	K2O %	FEO %	MNO %	TIO2 %	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	AS PPM	SB PPB	SR %	ZR %	TOTAL %
6626	3.70	6.00	2.30	70.37	14.67	.66	2.92	3.24	2.05	3.45	.10	.36	.070	5	98	10	0.8	10	3	1	.02	.009	97.91
6675	12.90	15.90	3.00	69.3	15.61	.82	3.73	1.89	3.02	2.88	.09	.33	.106	33	102	87	0.7	5	12	1	.01	.006	97.79
6627	36.80	39.50	2.70	67.43	15.24	.38	3.09	1.85	3.67	5.45	.20	.42	.368	474	84	8	0.7	5	10	1	.01	.003	98.11
6628	64.00	67.00	3.00	67.69	15.91	.16	1.83	3.39	2.94	5.22	.08	.45	.148	125	36	4	0.8	15	3	2	.01	.003	97.85
6629	87.00	90.00	3.00	71.86	14.50	.18	3.90	1.27	2.68	3.04	.07	.25	.086	4	20	4	0.4	5	2	3	.01	.005	97.86
6630	109.50	112.50	3.00	71.54	14.91	.27	3.74	2.07	2.54	2.25	.03	.29	.077	2	6	5	.05	10	5	3	.01	.003	97.73
6631	143.00	146.00	3.00	68.13	15.80	2.51	0.72	4.37	2.11	2.16	.16	.21	.065	3	24	4	0.5	5	1	1	.03	.002	96.26
6632	171.10	174.10	3.00	74.07	12.97	.32	4.03	1.16	2.21	2.79	.04	.20	.077	3	12	8	0.5	5	5	3	.01	.003	97.89
6633	185.80	188.50	2.70	58.9	17.29	.49	6.89	0.94	2.27	10.02	.10	.06	.069	344	39	7	1.4	20	33	7	.01	.005	97.59
6634	197.00	200.00	3.00	69.50	14.60	.58	4.45	1.79	2.04	4.31	.06	.35	.074	28	10	4	1.0	10	6	4	.01	.006	97.79
6635	197.00	200.00	3.00	62.76	14.61	2.02	5.93	2.23	0.48	9.07	.11	.44	.031	140	26	12	1.3	5	2	5	.02	.005	97.71

MINNOVA INC.

HOLE NUMBER: MTS38 — DRILL HOLE RECORD — IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SIC
PROJECT NUMBER: 305
CLAIM NUMBER: BLUEBELL
LOCATION: NTS 92B/13

PLOTTING COORDS GRID: MTS
NORTH: 971.00S
EAST: 998.00E
ELEV: 648.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 0.00

COLLAR DIP: -50° 0' 0"
LENGTH OF THE HOLE: 224.30m
START DEPTH: 0.00m
FINAL DEPTH: 224.30m

COLLAR GRID AZIMUTH: 20° 0' 0"
COLLAR ASTRNOMIC AZIMUTH: 20° 0' 0"

DATE STARTED: July 6, 1987
DATE COMPLETED: July 9, 1987
DATE LOGGED: 0, 0

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: F. BOISVENU DRILLING LTD
CASING: 4.9M
CORE STORAGE: 6722 LAKES RD, DUNCAN

PURPOSE: TO TEST THE MINE SEQUENCE AND THE EXTENT AND SIGNIFICANCE OF ZN STRINGER MIN. IN MTS-27 MONA

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
30.50	-	-48° 0'	ACID	OK		-	-	-	-	-	
61.00	-	-47° 0'	ACID	OK		-	-	-	-	-	
91.40	-	-48° 0'	ACID	OK		-	-	-	-	-	
121.90	-	-44° 0'	ACID	OK		-	-	-	-	-	
152.40	-	-38° 0'	ACID	OK		-	-	-	-	-	
182.90	-	-37° 0'	ACID	OK		-	-	-	-	-	
213.40	-	36° 0'	ACID	OK		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
0.00 TO 4.90	OVERBURDEN					casing
4.90 TO 44.95	DIORITE	Colour - green Grain size - cgr. with f-mgr phases massive with good intergranular texture f-mgr. dark green, massive to weakly foliated zones = phases of diorite or mafic dikes, carb-rich at: 11.7-12.55 19.8-20.6 27.0-28.1 30.9-31.6 34.45-34.7 35.85-36.15 40.2-44.95 - diorite becoming f.gr., weakly foliated; 1-2% white fsp crystals lower contact sharp	80 70	1% qtz-epidote veins - pervasive weak to moderate leucoxene	tr py in veinlets.	
44.95 TO 52.25	CHERT/ SILICIFIED ASH	Colour - light grey Grain size - very fine massive to weakly foliated - minor ash component 48.0m 50.5-51.3 - f.gr., green, feldspar-phyric intermediate dike (1% f's) - chilled contacts. 50.5m: contact	45 35	primarily silica-rich with wisps of sericite and chlorite = minor ash component.	tr diss py + cp - also occur in veinlets.	chemistry suggests felsic ash SiO2 = 72% - too low for chert
52.25 TO 74.95	FELSIC ASH with CHERT FRAGMENTS and BEDS	Colour - light grey Grain size - fine ashy parts foliated have 1-2% qtz phenocrysts in ash - chert interlayered with ash - locally have 5% mm sized white fsp(?) crystals 61.5m: foliation f.gr., green, intermediate dikes at: 62.5-63.1 65.9-66.2 66.3-66.7	50 45 80	ash - weakly to moderately sericitic	52.25-58.8: tr-1% py as disseminations and veinlets. 58.8-74.95: 1-2% py occurring primarily in veinlets parallel to foliation; also found in crosscutting veins. - also have tr. cp. - locally have more sulphides: 68.75-70.1: 2-3% py, tr cp - sulphides primarily in veinlets parallel to foliation 73.1-74.1: 10% py, tr cp in veinlets	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		68.8m: foliation	60			
74.95 TO 80.40	QTZ-PHYRIC CRYSTAL TUFF	Colour - grey Grain size - fine-med. 5-10% qtz eyes in v.fgr. ashy matrix. blocky core & fault gouge at upper contact. 76.5-76.65: fgr. green mafic dike	 50	moderately sericitic & weakly chloritic	tr-1% diss py	
80.40 TO 81.90	PYRITIC ASH	Colour - dark grey Grain size - very fine well-bedded qtz-phyric fragment at: 80.55-80.7 bedding 80.8 have pyritic matrix to chert and qtz-phyric fragments at: 81.0-81.1 81.25-81.9 lower contact = fault gouge	 70		20-25% v.fgr. pyrite	- looks like a very nice horizon - no visible sph or cp but sulphides are v.fgr - feels heavy - possibly baritic (very soft)
81.90 TO 156.60	FELSIC to INTERMED. ASH	Colour - greenish grey Grain size - fine foliated 1-2% qtz eyes 92.0m: foliation cherty looking interbeds at: 81.9- approx. 86.9 98.8-155.6 - unit looks more felsic - minor silicified/cherty zones interlayered with ash. fgr.-mgr., green diorite dikes carb-rich at: 113.5-113.75 118.7-118.9 119.2-119.9 120.3m	 60 40 65	weakly chloritic throughout 98.8-121.8: unit moderately sericitic 121.8-131.4: weak chlorite-sericite alteration	tr-1% py as disseminations and in veinlets 113.9-131.4: 1-2% py, tr cp - occur as crosscutting stringer. 131.1-131.4: 10-15% py as cross-cutting stringers	- looks similar to unit at 74.95-80.4 but fewer qtz eyes fault gouge + blocky core at 83.8-86.9 96.0-97.0 98.5-98.8 104.4-105.7 fault gouge at: 116.95-117.1

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		137.0m f.gr light green intermediate dikes at: 139.05-139.2 139.4-140.0	60	131.4-156.6 - intense pervasive sericite with silicified patches	131.4-156.6: tr py as disseminations + thin (<1-2mm) veinlets. 148.7-151.7: 2-3% py, tr cp as cross-cutting veinlets	
156.60 TO 179.40	INTERMED. ASH TUFF	Colour - greenish grey Grain size - fine weakly foliated 1-2% small (<1mm) fsp crystals - locally have siliceous cherty beds bedding very indistinct + contact with overlying Felsic Tuffs - gradational 164.0m	 50	weak chlorite + very weak, patchy sericite	tr py as disseminations and veinlets	
179.40 TO 182.10	MAFIC DIKE (?)	Colour - green Grain size - fine well-foliated 180.0m	 30	3-5% carb veinlets	none	
182.10 TO 224.30	INTERMED. CRYSTAL TUFF/ASH E.O.H.	Colour - greenish grey Grain size - fine weakly foliated - have fsp-phyric (10-15%) and qtz-phyric beds (15%) interlayered within a predominantly ashy matrix. 184.5m 203.0m 210.0m fault gouge at: 220.0-220.4	 40 45 45	weakly chloritic with patchy silicified areas.	tr-1% py - primarily as disseminations with the odd stringer. py in stringers occur as subrounded cubes up to 0.5cm in diameter. 209.1-224.3: 1-2% py as diss + stringers 219.85-220.1: 5-10% py, 1% cp in q.v.	chemistry indicates unit to be more felsic in composition (SiO2 = 72.06%)

Sample	From (m)	To (m)	Length (m)	GEOCHEMICAL Cu ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm		COMMENTS
6542	68.75	70.10	1.35	780	28	0.9	35			
6543	73.10	74.10	1.00	435	3700	1.5	140			
6544	80.40	81.90	1.50	288	17	1.0	50	1500		
6545	148.70	150.20	1.50	800	24	0.7	25			
6546	150.20	151.70	1.50	434	18	0.4	10			

Sample	From (m)	To (m)	Length (m)	SIO2 %	AL2O3 %	CAO %	MGO %	NA2O %	K2O %	FEO %	MNO %	TIO2 %	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	AS PPM	SB PPB	SR %	ZR %	TOTAL %
6951	47.20	50.30	3.10	71.85	14.67	1.29	1.78	3.81	2.26	1.52	0.02	0.34	0.217	213	23	21	0.4	5	6	1	.02	.007	97.79
6952	63.20	65.50	2.30	73.18	13.39	0.74	1.66	1.75	3.07	3.52	0.02	0.26	0.230	138	20	22	0.5	5	10	1	.01	.007	97.84
6953	76.60	79.00	2.40	74.03	13.83	0.71	2.08	0.87	3.61	2.36	0.03	0.23	0.143	88	31	13	0.4	5	8	1	.01	.005	97.92
6954	93.00	96.00	3.00	69.02	15.33	1.47	3.06	2.00	2.48	3.53	0.07	0.33	0.101	161	47	8	0.4	10	13	1	.02	.005	97.42
6955	126.50	129.50	3.00	70.61	13.71	1.06	3.01	0.45	3.16	4.89	0.08	0.31	0.146	731	109	4	1.1	5	9	2	.01	.005	97.46
6956	160.00	163.10	3.10	66.39	14.41	3.13	1.45	0.52	3.70	5.29	0.04	0.39	0.171	244	21	5	0.8	5	2	1	.01	.005	95.50
6957	190.50	193.50	3.00	66.94	15.36	0.61	6.35	1.02	2.43	4.51	0.08	0.39	0.094	36	26	4	0.7	5	2	1	.01	.005	97.81
6958	221.00	224.30	3.30	72.06	13.77	0.53	3.53	0.83	2.77	3.85	0.04	0.28	0.130	12	16	11	0.4	5	7	4	.01	.005	97.82

HOLE NUMBER: MTS39

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SIC
PROJECT NUMBER: 305
CLAIM NUMBER: DOUBTFUL FR
LOCATION: NTS 92B/13

PLOTTING COORDS GRID: MTS
NORTH: 1386.00S
EAST: 747.00W
ELEV: 465.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 0.00

COLLAR DIP: -50° 0' 0"
LENGTH OF THE HOLE: 145.43m
START DEPTH: 0.00m
FINAL DEPTH: 145.43m

COLLAR GRID AZIMUTH: 20° 0' 0"
COLLAR ASTRNOMIC AZIMUTH: 20° 0' 0"

DATE STARTED: July 5, 1987
DATE COMPLETED: July 7, 1987
DATE LOGGED: 0, 0

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: F. BOISVENU DRILLING LTD.
CASING: 5.2M
CORE STORAGE: 6722 LAKES RD DUNCAN

PURPOSE: TESTS THE MOD-STEEP DIPPING MINE PACKAGE OF THE SOUTH HORIZON 60 S OF OLD WORKINGS IN ARGILLITE

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
30.49	-	-49° 0'	ACID	ok		-	-	-	-	-	
60.98	-	-47° 0'	ACID	ok		-	-	-	-	-	
91.46	-	-47° 0'	ACID	ok		-	-	-	-	-	
121.95	-	-47° 0'	ACID	ok		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
0.00 TO 5.20	CASING/					
0.00 TO 0.00						
0.00 TO 3.70	CASING					
TO 5.20	OVERBURDEN CASING					
5.20 TO 28.60	DIORITE (SHEARED CTC)	Colour - med green & white Grain size - med massive, w loc mod sheared/foliated mg diorite. 40% 1-2mm fp, 1-3% blk oxides (ilmenite?) 50% mafics-chlz Shear Bottom ctc, irreg Local xenoliths or screens of and tuff at 9.5-9.6m 17.4-17.5m m-s sheared diorite at 23.5-28.0m, poss marks fault/shear zone c/a 30	60 20	- w chlz - w-s, loc I calc as floods/dissem. - massive qtz veins, milky white, blocky density (1-50cm) c/a 50 (40-70) - loc ep +/- qtz veins	- NVS-tr py - loc tr cy proximal to qtz veins	Bottom ctc irreg but distinct shallow core axis angle
28.60 TO 29.30	AND. F TUFF	Colour - lt-m greenish grey Grain size - fine W foliated, massive f and. tuff		- w-m chlz - m calc 1-2mm veins - m bleached	NVS	(Poss a phase of the diorite)
29.30 TO 39.20	AND TUFF-BX LAPILLI TUFF, minor LAM. TUFF/ CHERTY TUFF	Colour - m green Grain size - v.fine-fine ax, l-bx frags vw-w foliated, poorly (locally) layered and. volcaniclastic including tuff-bx, lapillistone/ lapilli tuff beds, c-f. Tuff and minor chert tuff 29.3-30.6m: and tuff-bx(?) frags include 20cm blocks of and tuff, fine px-fp porph. Note irreg		- vw to loc m chlz ie) 29.3-33.5m: vw-w 33.5-35.0m: w-w/m 35.0-37.2m: vw-w 37.2-39.2m: w-m chl +/- ser - w bleached - w qtz +/- calc veins	- tr-5% py, fg ave <1% py. - local traces of diss cpy at 30.8m, 37.0m, 32.3-32.5m - Note 5% py at 37.0-37.1 as vfg discon str/bands in bx size (10cm) fragments c/a 45	Note tr cpy found through this interval 29-3-30.6m: poss and tuff with cross-cutting dykes.

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		margins/outlines of fragments. 30.6-30.8m: poorly lam-massive cherty tuff (fragment?) pale green/grey & dk green layering, rotated? 30.8-35.4m: and tuff-bx similar to 29.3-30.6, note px phyric blocks vvw foliate with whitish gm, poss dykes. 35.4-36.2 and-dac lapillistone. M green-grey frags range 2-50mm, ave 2-5mm, frag supported (70%) in f-c tuff mx +/- fp cx. Frags include rhyodac tuff (25%) and tuff (20%) QP cx tuff (5%), dac tuff (20%) 36.2-39.2 And-dac lapilli tuff (minor bx size frags) frags (30-60%) range 2mm-10cm, ave 4 & 40mm, m & include rhyodac tuff + qtz crowded tuff (20%), and-dac tuff (10-15%), chert(?) 5%.	80 90			Litho: BCD #6570 31.0-34.0m
39.20 TO 43.40	AND-BASALT CX TUFF or DYKES, minor AND TUFF +/- CHERTY TUFF	Colour - m brown-sl purple, also m green Grain size - aph-v.fine tuff/cherty tuff; vf-f mx; f-m cx vvw foliated, massive looking and-basalt cx-tuff or fp phyric dykes. And tuff & cherty tuffs are v-m foliated nil-mod lam. fol'n layering at 40m 39.2-40.0 And-basalt fp (10-20%, <1-1mm) phyric cx tuff, minor (<1%) frags(?) bottom ctc ? 40.0-40.1 Cherty tuff & and-dac interlam tuff. 40.1-41.2 And-dac tuff with 10% cx & lithic frags (1mm-2mm. Including fp cx, tr qtz eyes, felsic frags(?) 41.2-43.4 And-basalt fp (5-20%, <1-1mm) phyric cx tuff with	30 50 30	- tr-v chl, loc 2-m chl at 39.3-39.9 - vw-v sel epz of fp phenos - vw-v calc +/- qtz 1-3mm irreg veins	NVS-2% py, ave tr-<1% py Note 1-2% py at margin of lam tuff, vfg str (40.0m)	Note poss chilled fg margins on and-basalt unit but contacts generally broken-up

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		fp rich bands/layers?				
43.40 TO 45.26	DAC-AND F. TUFF & F. TUFF, minor LAM CHERTY TUFF	Colour - dull lt-med green Grain size - v.fine ax; fine cx W foliated fel homog. dac f tuff, loc poorly-well lam, minor dac-and fp phyric (10Z) cx tuff. fol'n layering 43.4-44.6 Dac-and fp phyric cx tuff	 15 30 60	- m-w ser +/- chl - w loc s calc +/- qtz 1-4mm veins parallel fol'n	Tr-1Z vfg diss py	Geochem: BCD #6587 44.6-45.26m
45.26 TO 45.36	CHERT	Colour - v lt grey, also biege Grain size - aph Mod layered (2-3mm thick) aph chert. Biege chert/ cherty tuff at top 2-10mm poss altn of above unit or sph-rich horizon. top ctc bottom ctc layering	 20 25 25	Nil	-1-2Z diss py throughout, 3-5Z vfg py as blebs parallel layering & perpend. in fractures restricted to top (2-10cm) of biege chert. - poss laminated biege chert is sphalerite-rich(?) 5Z in interval	Not 4cm true thickness Geochem: BCD #6588 45.26-45.36
45.36 TO 46.10	CHERTY ARGILLITE	Colour - dk grey-black Grain size - vfg-aph W foliated, poorly layered cherty argillite with local graphitic seams, minor gouge planes. Layering variable orientations. bottom ctc layering, locally contorted	 80 35 80	- s calc +/- qtz lam veinlets	- 3-5Z vfg py as wispy <1-2mm discon bands/layers, also fill fractures with veins (Qtz-carb)	Geochem: BCD #6589 45.36-46.10m
46.10 TO 46.30	QUARTZ VEIN	Colour - milky white Grain size - v.fine Massive milky white crosscutting qtz vein bottom ctc	 40	- chl as discon narrow veins	- <1Z fg py as fracture coatings	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
46.30 TO 47.00	DAC-AND F TUFF	Colour - dull m-lt green Grain size - v.fine-fine Mod-s foliated/s sheared, massive dac-and aphyric tuff. Calc flooded as banded <1mm veins + dissem. fol'n	 45	- w-m chlz/serz - S-I flood of calc (veins + flood)	Tr diss py	V similar to footwall rock of argillite in CM-5 drill hole
47.00 TO 50.70	RHYODAC FP-QTZ EYE CX-LITHIC TUFF, minor CHERT	Colour - lt-med grey, loc sl green Grain size - aph-chert; aph mx; f-c cx; l frags Vw-w foliated, massive locally layered fp-qtz phyric crowded cx tuff with minor lithic frags, & minor chert layers fol'n bottom ctc	 20 45 75	- silicified(?) throughout - vw (2mm qtz +/- calc veins - tr chl noted by local greenish areas -nil	<1-2% py as vfg-fg blebs, diss, discon str. -2% py fg as diss along part med brown irreg horizon (sphal-rich?) but sub-parallel to layering -pos sph in above band, 2-3% in interval	Goechem: BCD #6590 47.0-47.4m Litho: BCD #6567 48.0-49.4m - sph?, med brownish soft mineral.
		47.0-47.15 Layered chert & tuffaceous chert layering	 75			
		47.15-47.22 Rhyodac fp (15-20%, (1-2mm) - qtz eye (1-2%, (1mm) phyric cx tuff bottom ctc	 55	- silicified(?)	- 2-3% diss fg py & as <1mm frac coated str, blkish	Top ctc with chert somewhat irreg.
		47.22-47.34 Chert, poorly layered, lt grey Layering	 55		1-2% py diss + irreg str	
		47.34-50.5 Rhyodac fp (10-25%, ave 15%), qtz eye (1-3%, ave 1%, (1-1mm) crowded cx-lithic (1% <1cm felsic frags)		- loc 1-2cm w chlz band from str.	- 1-3% py as fg diss + vfg brown <1mm str (fracture fillings)	
		50.5-50.7 Rhyodac Qtz eye (5-10%, (1-3mm), fp (10-15%, (1mm) cx tuff m serz, <1-2% py				
50.70 TO 51.70	AND-DAC F TUFF or DYKE(?)	Colour - med dull green Grain size - fine W foliated, rel massive looking and-dac f aphryic tuff or poss dyke(?) fol'n bottom ctc	 50 70 50	- w chl +/- serz - m-s calc as <1mm veins + floods	- tr py-2% py as vfg diss str c/a 5	No chilled margins noted

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
			30			
51.70 TO 52.70						
TO 52.90		Colour - lt-med grey		- tr-w serz	- <1-5% py as vfg-fg diss, & discon str	
52.70	CROWDED CX-	Grain size - aph-vf ax; f-c cx		- silicified(?)	py	
52.90 52.90 52.90 52.90 52.90 52.90 52.90 52.90 52.90 52.90 52.90 52.90	 RHYODAC QFP CROWDED CX- CROWDED CX- CROWDED CX- RHYODAC QFP CROWDED CX 	Grain size - aph-v.fine ax; f-c cx				
		51.7-51.8 Cherty tuff/qtz eye (5-8%, <1-3mm), fp (1-2%, 1mm) bottom ctc f dac aphyric tuff bottom ctc 51.9-52.7 Rhyodac QFP crowded (qtz eye 5-8%, ave 5% <1-5mm, FP phenos 10-20%, <1-3mm) bottom ctc 52.7-52.8 Chert, poorly-mod banded, lt grey, loc biege bands	 45 20 65 	 - silicified(?) - s serz - tr ser - silicified(?) - nil-w serz	 2-3% py fg - 3% vfg py as blebby discon <1mm str - <1% diss py - 2% vfg py as <1mm band parallel &	 Bottom ctc somewhat sheared

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		vw-w foliated crudely-mod layered rhyodac QFP cx-				
		(minor interlayered tuffaceous chert), 3-5aa			perpend. layering	
		layers.			- pos biege band with tr sph?	
		52.8-52.9				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		Cherty tuff, Layering indistinct		- w-m qtz veins, irreg 1-5mm	- 3-5% diss & blebby py	
		bottom ctc	65	- tr ser		
52.90 TO 54.20	DAC-RHYODAC QP CX TUFF	Colour - lt-m dull grey-green Grain size - v.fine-fine ax; f-m cx W-m foliated massive looking rhyodac qtz-eye (10-20%, <1-2mm ave <1mm) fp (<5%, <1mm) cx tuff. Has sericitic ash ax. fol'n	50	- w ser +/- chl	- 1-3% diss vfg py	
54.20 TO 55.30	FAULT(?) BX	Colour - lt-m green, wh, lt green Grain size - f-vf ax; f-c cx/frags Brecciated, veined section with minor mafic bands (dykes?) in below QFP crowded cx tuff. shear	30 50	- w serz/chlz - m qtz +/- calc veins (1-40mm thick)	- <1-1% diss fg py - local biege wispy bands poss sph?	
55.30 TO 59.60	RHYODAC QFP CROWDED CX-LITHIC TUFF minor F. TUFF, CHERTY TUFF	Colour - lt grey Grain size - v.fine ax; f-c cx w-m foliated poorly interlayered rhyodac crowded QFP cx tuff (80%), f tuff (10%), cherty tuff (10%) 55.3-55.8 Rhyodac Qtz (10%, <1-4mm, ave 2-3mm), fp (15%, <1-3mm, ave 1-2mm) phyric cx tuff with 1-2% felsic 2-6mm lapilli fol'n bottom ctc	70 40	- m-s serz - w-m irreg qtz 1-5mm veins (loc 15cm thick)	- tr-<1% diss py	Litho: BCD #6568 56.6-58.6 (excludes qtz veins)

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		shear	40 50			
		55.8-56.0 Dac aphyric tuff, dull lt-med green		- m ser/chl	tr py	
		56.0-57.2 Rhyodac QFP crowded cx-lithic tuff similar to above		- s serz	- <1% py	
		57.2-57.3 Qtz vein, massive milky white top ctc	 60	- qtz, minor chl	tr py	
		57.3-58.1 Rhyodac qtz (5-10%) - fp (10-20%) cx-lithic (<5% felsic frags) tuff		- m-s serz	- tr-<1% py	
		58.1-58.2 Rhyodac fine QFP cx tuff, 3-5% <1-1mm qtz eyes, 2-5% fp phenos <1mm bottom ctc	 55	- vv ser - silicified?	- tr py	
		58.2-58.6 Rhyodac QFP crowded cx-lithic tuff (5-10%, <1-3mm qtz eyes, 5-15%, <1-2mm fp phenos), <2% felsic-cherty frags		- s-m serz	- <1% py	
		58.6-58.9 Laminated/interlayered QFP rhyodac cx tuff, cherty m-dk grey (argillaceous?) tuff, minor f cx-lithic tuff layering	 85	- nil to m serz in QFP cx tuffs	tr py	Note slump features in cherty tuffs
		58.9-59.6 Rhyodac crowded QFP cx-lithic tuff, m-s sheared. Qtz eyes 3-8%, <1-2mm, fp phenos 3-10%, <1-2mm, frags 3-10%, 1-4mm shear	 40	- S-I serz - w-m irreg 1-5cm qtz veins	- <1% py	
59.60 TO 60.35	ARGILLITE/ CHERTY ARGILLITE	Colour - blk-dk grey, minor med grey Grain size - vf-aph w-m foliated/sheared argillite & cherty argillite, with contorted layering, slumped beds. (5mm cherty arg med grey) layering, contorted? bottom ctc irreg	 60	- m-s calc <1-1mm thick veinlets	- 1-8% fg py as irreg 2-10mm blebs, lenses (beds?) ave 2-3% Note at 60.1-60.2 8% py as 1mm layers	Geochem: BCD #6592 59.6-60.2m Minor graphitic planes throughout

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		Note gouge (3cm) at 60.15m (graphite bearing)				
60.35 TO 61.30	CHERTY RHYODAC QFP CROWDED CX-LITHIC TUFF	Colour - lt-m grey Grain size - v.fine ax; f-m cx, frags m-s foliated poorly lam cherty tuff & rhyodac lithic-cx tuff. Qtz eyes 3-8% lt grey, <1-2mm, lam ave fp 5-15%, <1-1mm fragments 5% 2-8mm felsic. Cherty tuff 1-4mm layers not distinct & rather lensoid layering ? bottom ctc, rel sharp	 50 55	- s-m serz	- <1% diss py	
61.30 TO 74.80	FAULT ZONE	Colour - med/dk green + lt biege-grey Grain size - v.fine-fine ax, frag 2mm-5cm Fault gouge, bx, milled zone in dac-and & rhyodac tuffs/cx-lithic tuffs. gouge/shear 61.3-68.6 Dac-and m. green f tuffs milled-up with intermittent gouge sections <1cm-15cm thick. Note 68.1-68.6 is fault bx which includes chert/ cherty tuff frags (1-5cm) bottom ctc, gouge 68.6-72.3 Biege-lt grey, m-s foliated/sheared, rhyodac qtz phyric (3-10%, <1-2mm) cx tuff with minor (2%) frags 2-8mm of cherty tuff, felsic tuff. fol'n/shear, variable bottom ctc, fault bx Note minor arg(?) bands 1-2cm at 71.8 and 72.0m 72.3-73.0 m-dk green milled bx of dac-and tuff/cx tuff 73.0-74.8 Dac-rhyodac milled bx + gouge gouge	 20 60 20 40 15 45	- s ser +/- chl, loc clay in gouge sections - variable w-s irreg <1-2mm calc +/- qtz veins - s ser +/- chl - s calc +/- qtz veins - s ser/chl - m-s patchy irreg qtz +/- calc veins - clay - s ser - m patchy qtz veins	tr-<1% fg diss py 1-2% py 1-2% py	 Note 3% brown fg leucoxene? Excellent gouge-bx at 74.3-74.8m

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
74.80 TO 84.20	RHYODAC F TUFF/F CX TUFF (or CHERT with FRAGS/CX)	Colour - vlt-lt grey Grain size - aph ax; vf-f cx vw-w foliated, massive-poorly laminated rhyodac tuff/cx tuff or cherty tuff. Rel homogeneous looking. fol'n 74.8-76.1 Poorly layered rhyodac FQP cx tuff. 5-15%, <1-2mm fp phenos 1%, <1-1mm qtz eyes 76.1-81.0 Cherty qtz (1-3%, <1-1mm) phyric rhyodac tuff. Crudely layered. Aph cherty ax. layering 81.0-81.6 M grey-green f dac cx tuff (fp 2-5% <1mm, tr qtz eyes) 81.6-84.2 Crude-mod laminated siliceous/cherty rhyodac f tuff, loc QFP phyric fol'n layering ?	 45 60 60 65 60	- tr-loc w serz - silicified(?) pervasive - loc chl +/- ser along fractures - m chl +/- ser along w-m fractures - silicified ? - vw ser/chl - s calc +/- qtz veinlets - silicified? - s <1mm gashlike calc veins	- <1-2% fg py as dissem + blebs - locally note diss lt brown min poss sph(?) or leucoxene(?) tr py - tr-<1% py - 1-2% diss fg leucoxene?, poss sph?	Litho: BCD #7571 76.1-79.1m Geochem: BCD #6593 82.0-83.5m
84.20 TO 85.10	INTERLAM CHERTY TUFF F.TUFF/QP CX TUFF	Colour - med-lt greenish grey, & lt grey Grain size - aph-vf ax; f-m cx w/w-m foliated, interlam cherty tuff layers with f. rhyodac aphyric ash, also chloritic looking qtz(?) phyric dac-rhyodac cx tuff bottom ctc layering	 65 65	- tr ser +/- chl - m-s irreg <1mm calc veins/gashes - loc silicified?	tr-<1% py	
85.10 TO 95.30	DIORITE, SHEARED	Colour - dk-m green Grain size - f-vf m-s sheared/foliated fg(?) diorite, rel homogeneous looking bottom ctc, sharp shear	 75 45	- S-I calc flood, m-s 1-2mm calc veins - w chlz	tr-<1% py	2-5% vfg leucoxene grains

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
85.80 TO 93.80	DAC FP PORPH FLOW or DYKE? (POSS CX TUFF)	Colour - med grey-sl green Grain size - aph gm W foliated massive fp porph flow or dyke. Includes rel even distribution of 1-2mm fp phenos 5-15% in aph siliceous green gm. 91.4-93.8 ep-qtz +/- hem altered, poss not same lithology but difficult to determine fol'n	 50	- silicified throughout (?) - s <1-2mm irreg calc +/- hem veins throughout - loc at 91.4-93.8 a ep-qtz +/- hem altn zone as wispy veins along fractures, also pervasive looking mottled altn	NVS -1% py, ave <1% py as fg dissem	Note 91.4-93.8 poss locally lam siliceous tuff Litho: BCD #6572 88.0-90.5m
93.80 TO 99.80	FAULT BX ZONE	Colour - m-dk green to lt grey-green Grain size - aph-f; frags 1-50mm Brecciated & silicified(?) fault zone in cherty tuffs, rhyodac packed FQP cx tuff, dac-and lapilli tuff(?) 93.8-95.2 Broken-up by veins, cherty or silicif tuff locally laminated 95.2-95.8 Mx sup fault bx - milled zone. M-dk green, s chl mx, 20% cherty frags. Near gouge. fault 95.8-97.1 Banded - brecciated dac cx-lithic(?) tuff. M grey-green banding 97.1-98.7 Rhyodac packed cx (fp +/- qtz) - lithic (15%, 2-5mm) tuff with intermittent narrow bx sections. Lt green-grey 98.7-99.8 Fault bx-silicified? 2-80mm frags 30% (qtz, dac tuff, rhyodac cx tuff) in f cx tuff mx.	 20 55 	- variable tr-w/m ser +/- chl ie) vw-w ser/chl 93.8-94.9m nil-tr ser 94.9-99.8m - m patchy & s irreg calc +/- hem veins ie) at 93.8-95.3m & 99.0-99.8m - variably silicified (?) - loc bands of m chl-ser throughout - silicified mx - silicified (?)	tr-1% py	Note 3-5% vfg dissem leucoxene
TO 101.30	INTERLAYERD RHYODAC QFP CX TUFF & CHERT	Colour - v lt grey-green also lt-m brown/grey Grain size - aph chert; vf mx; f-m cx Q foliated, poorly-mod layered section of FQP rhyodac cx tutff (95%), cherty/cherty tuff (5%),				

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		Note QFP cx tuff includes section with vfg brownish mx. Otherwise both similar w.r.t. phenocryst content; fp phenos (1-5%, 1-2mm) qtz eyes (5-10%, 1-3mm, ave 1-2mm)				
		bottom ctc	45			
			60			
		layering	70			
		99.8-100.3 rhyodac QFP cx tuff, lt grey aph-vfg mx				
		100.3-100.7 interlayered .5-1cm thick cherts with rhyodac cx tuff & brownish 1-2mm irreg bands parallel to layering				

Sample	From (m)	To (m)	Length (m)	SIO2 %	AL2O3 %	CAO %	MGO %	NA2O %	K2O %	FEO %	MNO %	TIO2 %	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	AS PPM	SB PPB	SR %	ZR %	TOTAL %
BCD6570	31.00	34.00	3.00	44.16	14.71	11.25	8.42	2.01	0.44	10.94	.36	.78	.015	142	53	13	.8	5	9	5	.04	.005	93.12
BCD6567	47.00	50.00	3.00	70.25	13.94	0.79	1.22	5.76	2.06	2.52	.08	.26	.101	5	42	3	.6	10	6	2	.01	.005	97.00
BCD6568	56.00	59.00	3.00	70.36	14.51	1.62	2.11	2.09	3.29	2.31	.06	.21	.079	4	28	8	.6	5	1	2	.02	.005	96.65
BCD6571	76.50	79.50	3.00	68.65	14.72	1.99	.73	5.08	1.78	2.73	.09	.34	.063	11	32	3	.6	10	17	1	.02	.007	96.18
BCD6572	88.50	91.50	3.00	65.07	14.92	3.46	1.16	4.55	1.81	3.31	.12	.32	.060	11	44	4	.7	5	9	1	.02	.008	94.83
BCD6569	99.50	102.50	3.00	64.31	14.66	1.84	3.32	4.59	1.43	5.27	0.13	.51	.085	23	89	4	.7	5	9	4	.02	.005	96.16
BCD6573	102.50	105.50	3.00	45.39	15.14	7.70	10.52	2.47	0.55	11.29	.32	.77	.048	125	65	4	1.6	5	12	7	.04	.005	94.23
BCD6574	108.00	111.00	3.00	58.73	16.17	2.22	4.57	5.08	0.78	6.89	0.14	.85	.044	26	107	6	1.3	5	6	4	.02	.008	95.49
BCD6636	119.00	122.00	3.00	68.83	14.88	2.05	0.36	5.36	2.53	1.93	0.04	.28	.049	19	107	27	.2	5	11	1	.02	.005	96.33
BCD6637	133.00	136.00	3.00	68.18	14.62	1.79	1.47	3.18	2.6	3.79	.07	.34	.076	6	47	5	.3	10	1	2	.02	.005	96.14

HOLE NUMBER: MTS40

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SIC
PROJECT NUMBER: 305
CLAIM NUMBER: DONALD
LOCATION: NTS 92B/13

PLOTTING COORDS GRID: MINNOVA 1987
NORTH: 1235.00S
EAST: 1762.00W
ELEV: 165.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 0.00

COLLAR DIP: -50° 0' 0"
LENGTH OF THE HOLE: 188.11m
START DEPTH: 0.00m
FINAL DEPTH: 188.11m

COLLAR GRID AZIMUTH: 45° 0' 0"

COLLAR ASTRNOMIC AZIMUTH: 45° 0' 0"

DATE STARTED: July 8, 1987
DATE COMPLETED: July 10, 1987
DATE LOGGED: 0, 0

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: F. BOISVENU DRILLING LTD
CASING: 7.6 M
CORE STORAGE: 6722 LAKES RD DUNCAN

PURPOSE: TEST SOUTH HORIZON MINE PACKAGE STRATIGRAPHY SUPPORTED BY STRONG IP CHARGEABILITY ANOMALIES

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
30.49	-	-45° 0'	ACID	OK		-	-	-	-	-	
60.98	-	-46° 0'	ACID	OK		-	-	-	-	-	
91.44	-	-45° 0'	ACID	OK		-	-	-	-	-	
121.92	-	-45° 0'	ACID	OK		-	-	-	-	-	
152.44	-	-44° 0'	ACID	OK		-	-	-	-	-	
181.97	-	-43°30'	ACID	OK		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
0.00 TO 7.60	CASING/ OVERBURDEN					
7.60 TO 14.40	AND. TUFF/ F CROWDED CX TUFF (with mag-rich layers)	Colour - m-dk green, dk grey-green in mag-rich areas Grain size - vfine-fine matrix; fine-med cx W foliated, crudely to mod layered and f. tuff, crowded cx tuff & magnetite-rich tuff. 7.6-8.2m: and. f. tuff 8.2-9.4m: banded mag-rich and. crowded cx tuff approx 30% mag, 40% fp (1mm) phenos, 30% matrix banding 9.4-11.4m: and. fp xl tuff 11.7-14.4m: and tuff (?) vw foliated-massive, poss part of a dyke(?) similar to 23.4-32.8m	20	- w/w-m chl throughout - w ep as wispy 1-3mm thick veins +/- qtz - w loc mod calc <1mm veinlets	tr -<1% py, loc 1-3% py diss at 7.6-8.0m	Minor hem along some fracture coatings - poss dyke Litho: BCD #6644 8.2-9.4m
14.40 TO 23.40	RHYODAC-DAC CX-LITHIC TUFF, minor CHERTY TUFF	Colour - lt-m grey, sl green Grain size - vfine matrix; f-m cx; l frags Vw foliated, poorly layered rhyodac cx-lithic tuff with siliceous tuff or fine tuff bands. Generally has 2% 1-2mm qtz eyes, 15-20% <1-1mm fp phenos with <5% subround-roung frags 2mm-10cm, ave 5-40mm. Frag include and. tuff, rhyodac fp porph, pyritic siliceous tuff, & minor sulphide frags(?) Note whitish siliceous f rhyodac cx-t bands at 15.3-16.6m fol'n layering/banding top ctc ? bottom ctc	10 20 20 15 60	- vw-w ser, +/- chl - loc silicified(?) in cherty tuff bands - vw calc +/- qtz <1-1mm veins	2-3% py as fg-mg diss, also as fragments(?) or at least py rich frags up to 110 x 4mm. Also py as vfg irreg discont bands/str	Poss equivalent to crowded cx-lith tuff unit. Litho: BCD #6645 17.4-18.4
23.40 TO 32.80	AND DYKE(?) with FP PORPH, APHYRIC & FP-PX(?) PHYRIC PHASES (POSS AND TUFF & CX	Colour - dull m green Grain size - vfine-fine gm; f-c phenos vvw roliated, massive and dyke with fp phyric phase or poss coarse and ash & fp phyric cx tuff. Contact suggest and intrusive body (irreg weakly chilled) Note fp phyric section at 25.5-32.1m bottom ctc	35	- w, loc m chl - m sel epz of fp phenos - w calc 1-2mm gashes & veins	NVS-tr py, loc <1% py	This unit appears to dialate above unit as v. similar rock are found below Litho: BCD #6646 24.0-27.0m

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
	T)	fol'n?	60			
32.80 TO 37.10	RHYODAC QFP CX-LITHIC TUFF/ to LAP TUFF	Colour - lt grey-green Grain size - vf mx; f-m cx; l frags w foliated, locally crudely layered rhyodac QFP cx-lithic t, (similar to 14.4-23.4m) 5% 1-2mm round qtz eyes 5-15% <1-1mm fp phenos 5% round-subround frags including pyritic siliceous tuff, chert(?), fuchsite rich frags, QP tuff. Range 2mm-5cm ave 1-2cm Note minor fp-px(?) phyric dykes x-cut at 40 c/a bottom ctc, irreg with gouge fol'n	 50 30	- vv-v ser +/- chl - tr fuch in some frags	tr-8% py as fg diss, discon bands, blebs, fragments(?) Also note poss loc sphalerite-py-cpy stringers. ie) 32.9m: 4mm, sph-cpy-py, c/a 20 34.1m: 2mm, py, discon, c/a 30 34.3m: 2mm, py, c/a 20 Note sph?-cpy-py str pseudo dissem along a band. Also poss tr galena with sphalerite	Bottom ctc broken-up zone with numerous calcite veins at base/bottom ctc Geochem: BCD #6598 32.8-33.85m <1% Zn <1% Cu Litho: BCD #6647 33.85-34.85m Geochem: BCD #6599 34.85-36.0m Geochem: BCD #6600 36.9-37.1m
37.10 TO 55.30	AND. TUFF, CX TUFF, minor LAM T/CHERTY TUFF & minor RHYODAC QFP??	Colour - m-dk dull green Grain size - vfine mx; f-m cx vv-v foliated, poorly-moderately layered section of and f-coarse tuff & interlam f cx tuff, & vf siliceous(?) t(cherty) minor lap tuff fol'n layering bottom ctc, transitional 37.1-41.5m: massive looking f and tuff, though v. similar to above dykes. Note poss qtz eyes?? 41.5-48.1m: interlayered and f-c tuff (75%) & and cx tuff (25%) of 5-20cm layers 48.1-50.3m: and cx-lapilli tuff, 5-10% 2-4mm lapilli tr-3% qtz eyes?, 10-15% fp 59.3-54.2m: and tu-f cx tuff 54.2-54.9m: laminated cherty tuff layering 54.9-55.3m: and f-l tuff	 45 60 60 40 40	- v-m chl - w loc strong irreg gashlike calc veins - loc w sel epz of fp phenos in cx tuff	tr py (ave), loc 1-3% py ie) 42.0-42.6m: 3% vfg py as irreg discon frac fillings	Litho: BCD #6648 48.0-51.0m poss a rhyodac QFP xl tuff

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
55.30 TO 75.10	AND-DAC LAPILLI TUFF-LAPILL-STONE (MULTI-LITHIC) with minor AND DYKES	Colour - dull med green & biege Grain size - f mx; f-m cx; l frags v foliated, massive to crudely layered and-dac lapilli tuff/ lapillistone crosscut by numerous and(?) dykes. Frag-mx supported. Frags range 2mm-10cm, ave 5mm-2cm. Frags are subround-subangular, & include and tuff (10-15%), epz and cx tuff(?) (10%), rhyodac FQP crowded xl tuff (10-15%), rhyodac QP (1-2%), rhyodac tuffaceous chert(?) (1-2%), pyritic f tuff (<1%) fol'n Mx (30-50%) is f and(?) tuff with scattered fp phenos <5-10%, & qtz eyes 1-3% 1-2mm Note and or mafic fp-px(?) bearing dykes at 61.9-63.0m c/a 20 63.8-64.8m c/a 35 68.6-69.3m c/a 40	10 30	- vv-m chl +/- ser ie 55.3-58.7 vv-v 58.7-60.0 m-v 60.9-63.1 vv 63.1-69.2 v-m 69.2-65.1 v -vv calc & qtz veins	<1-1% diss py - Note loc some pyritic fragments. ie) 66.25m: 1 x 5cm 15% vfg py in siliceous tuff	Litho: BCD #6649 70.0-73.0m
75.10 TO 98.70	AND TUFF CHERTY TUFF F CX TUFF, minor RHYODAC TUFF INTERLAM (MINOR FP PORPH DYKES(?))	Colour - lt-m/dk dull green Grain size - aph-c t; f-c cx v-vv foliated, well layered- poorly layer-massive and package/section consisting of and f tuff/f cx tuff, laminated cherty tuff & minor rhyodac tuff fol'n layering bottom ctc ? 75.1-76.5m: ac cx-lithic med dull green tuff? 1-5% qtz eyes? fp phenos 5% ? not well defined Poss 15% whitish frags or qtz eyes. Need thin section 76.5-77.0m: and tuff & interlam rhyodac (20%) 1-5mm layers 77.0-77.8m: dac-and cx-lithic tuff. 3% 1mm qtz eyes, 5% fp <1mm pheoms, 10% vague 2-3mm dac frags(?) 77.8-81.4m: interlayered and tuff & cx tuff beds 81.4-82.7m: biege-lt grey pyritic rhyodac f tuff tr qtz eyes(?). Poss siliceous exhalite layering bottom ctc, irreg	50 55 35 40 30	- vv-v-m chl +/- ser - v loc m 1-2mm irreg calc veins - m chl +/- ser v-m ser/chl - tr ser - m-s fe carb tension-like 1mm veinlets	tr-3% py, ave 1% diss fg py, loc 3-5% py at 85.0m tr cpy at 88.8m 5% loc 8% vfg diss py	Litho: BCD #6650 88.0-91.0m

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		82.7-84.9m: Diorite dyke or and crowded fp cx tuff 50-60% 1-2mm fp(?) phenos ser in a chl-leucoxene net texture ax or gm.		v chl	tr py	No distinct fragments noted
		bottom ctc	80			
		84.9-85.4m: rhyodac siliceous vf tuff with pyritic 5-10mm irreg layers?		vv ser	1-loc 5% py, ave 2-3% py vfg py. Up to 15% vfg py in pyritic bands	
		layering	75			
		85.4-86.1m: dac lap-cx tuff, 3-5% qtz eyes, 15-20% lap frags. Brownish-grey				
		bottom ctc	45			
		86.1-86.5m: well lam tuffaceous chert, biege				
		86.5-87.6m: dac-and cx-lithic t similar to 85.4-86.1 but with <5% lapilli frags				
		87.6-87.8m: siliceous rhyodac tuff? or chert		bleached	3% py as vfg hairlike frac fillings	
		bottom ctc	45			
		87.8-96.2m: lam and vf tuff & cherty tuff (1-2mm lam) & and tuff, also and f xl tuff				
		layering, contorted	55			
		96.2-98.7m: and f cx tuff minor interlam f tuff				
98.70 TO 108.00	DIORITE(?) DYKE or AND FP CROWDED CX TUFF	Colour - dk green & lt grey phenos Grain size - v.fine ax/gm; f-c cx vv-v foliated, massive fp(?) phyric (50%) diorite or and cx tuff. Bottom ctc looks vaguely chilled but phenocrysts are not ragged & euhedral. Typical of the diorite ax appears to be a mixture of chl-leucoxene		- vv chl - m ep in ax - v qtz +/- chl +/- ep <1-2cm veins	NVS	Litho: BCD #6685 100.0-103.0m
		fol'n	45			
			70			
		bottom ctc?	55			
108.00 TO 119.70	AND TUFF/ CX TUFF, minor CHERTY TUFF	Colour - m-dk green Grain size - v.fine-fine, loc aph vv-v loc mod foliated, crudely layered and t/xl tuff, minor well lam cherty tuff Note cherty tuff at 109.2-109.3m 119.1-119.2m		- variable v-m/s chl ie) 108.0-111.0m: v-m chl +/- ser 111.0-114m: v chl 114.0-115.5m: m-v chl 115.5-119.7m: vv-v	NVS-3% py, ave tr-<1% fg diss py	Litho: BCD #6676 115.5-117.5m
		fol'n	30 70	- m-s calc 1-2mm gashlike veins		

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		layering bottom ctc, rel sharp	35 20			
119.70 TO 130.60	DAC-RHYODAC FP PORPH +/- QE CX TUFF (minor AND DYKES)	Colour - lt-m grey Grain size - v.fine ax; f-m cx vv-v foliated, rel massive looking FQP dac cx tuff minor crosscutting mafic dykes. 10-20% <1-2mm fp phenos, <1-3% <1-1mm qtz eyes fol'n, approx. bottom ctc, transitional Mafic dykes at 124.05-124.5m: c/a 30 128.7-128.9m: c/a 35-40 130.2-130.3m: c/a 40	 45	- vv-v ser - v loc m 1-3mm qtz veins	tr-1% py	Litho: BCD #6677 127.0-130.0m
130.60 TO 136.60	DAC-RHYODAC F TUFF/F CX TUFF	Colour - lt green-grey Grain size - v.fine ax; fine cx v foliated, crudely layered/banded rhyodac f QFP cx tuff. Very similar to above interval but this section q eye dominated 2-10% <1-1mm qtz eyes, <2-10% fp <1-1mm fol'n, approx bottom ctc, shear banding	 30 50 50 35	- v & v-m serz	<1-1% py	
136.60 TO 140.20	RHY-RHYODAC QTZ EYE +/- FP TUFF/CX TUFF	Colour - wh-lt grey Grain size - aph-vf ax; f cx v-m foliated, poorly laminated rhy tuff with finely qtz +/- fp phyric layers. (1-2% <1mm qtz eyes, <1-5% fp <1mm) Distinct whitish unit Note narrow gouge at 139.60-139.64m c/a 60 bottom ctc, shear fol'n	 10 45 60	- tr ser - vv qtz 1-5mm veins	tr - <1% py	Litho: BCD #6678 136.7-140.1
140.20 TO 146.60	FAULT in RHYODAC & DAC LAM F CX TUFFS (PART OF FAULT ZONE)	Colour - lt/med green-pale green Grain size - v.fine ax; fine cx v-m foliated, poorly banded/layered rhyodac locally mottled. Variable 2-10% ave 3-5% <1mm qtz eyes, <5-20% <1mm fp phenos		- vv ser - v loc m calc & qtz veinlets	NVS-<1% py	Blocky subparallel to c/a gouge & qtz veins

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		top ctc, shear fol'n banding gouge bottom ctc, transitional	10 45 65 75 10 45			
146.60 TO 152.60	RHY-RHYODAC FINE QFP CROWDED CX TUFF	Colour - biege to sl lt green/grey Grain size - v.fine ax; f cx M-s foliated, crudely layered rhy-rhyodac f QFP crowded cx tuff. 5% <<1mm qtz eyes, 5-15% <1mm fp phenos. bottom ctc. approx. fol'n	 65 50 60	- m-s serz, loc vv-v - m calc or fe-carb veins +/- flood - v loc m qtz 2-4mm thick veins	tr py	Litho: BCD #6679 149.0-152.0m
152.60 TO 153.50	INTERLAM CHERTY, TUFFACEOUS CHERTY & RHYODAC TUFF (minor BIEGE DYKES?)	Colour - lt grey-biege Grain size - v.fine ax; fine cx v-m foliated, mod-poorly layered locally, rhyodac siliceous tuff, minor cherty tuff layers (15%) 152.6-153.2: cherty tuff 153.2-153.8: rhyodac f qtz eye 5% <1mm-sp 2-3% <1mm cx tuff with minor 5cm thick biege dykes bottom ctc fol'n layering ? 153.8-154.2: biege leucoxene-bearing dyke c/a 60	 65 65 60 	- m-v serz - v-m 1-3mm qtz veins bleached?	tr py	Bottom of unit defined by first appearance of chert/argillite
153.50 TO 158.40	CHERTY ARGILLITE, minor SILICEOUS TUFF/CHERT	Colour - blk-dk grey with dull lt green-grey layers Grain size - v.fine arg; aph chert m foliated, mod-well laminated cherty argillite with minor chert, rhyodac tuff graphitic argillite Note folded interlam cherty tuff beds at 156.9m fol'n layering bottom ctc, shear Note chert at 153.5-153.6 (lt grey) 153.6-163.85 (lt grey) Note greenish-biege tuffaceous chert at 153.85-154.10	 45 70 65 60	- m-s 1-2mm gashlike calc veins in argillite & parallel to fol'n - loc m-s qtz 2-10mm contorted veins - m ser in rhyodac tuff	2-3% vfg py, loc 3-5% py occurs as discon 1 x 5mm layers and irreg frac fillings +/- qtz loc 3-5% py at 157.8m py is fg blebby in chert/siliceous tuff	Similar to Canamera "cherty arg" with minor thin graphic seams. Geochem: BCD #6701 153.5-154.5m Geochem: BCD #6702 154.5-155.5m Litho: BCD #6680 155.5-157.0m Geochem: BCD #6703 157.0-158.4m

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		154.75-154.9 Note fault gouge at & good gp at 155.0-155.2 50 c/a 157.7m c/a 50				
158.40 TO 159.35	DAC F TUFF SHEARED (POSS SHEARED DIORITE DYKE)	Colour - lt dull cmf green with whitish bands Grain size- v. fine m-s foliated/sheared, pseudo-banded, locally contorted dac t?or diorite related sheared dyke. Note <2% 1-3mm qtz eyes(?) bottom ctc approx. shear/fol'n	 70 70	- m ser(?) or chl? - S-I clac <1mm veinlets & dissem mainly parallel fol'n	NVS	Litho: BCD #6681 158.6-159.35m
159.35 TO 168.50	RHY-RHYODAC QFP CX TUFF (POSS FLOW?)	Colour - white-lt grey/cream Grain size - aph-v.fine ax; f-m cx w foliated, rel massive rhy-rhyodac QFP cx tuff or poss flow? 2-5% <1-1mm qtz eyes <5-15% <1-2mm ave 1mm sl pink fp. Variations in phenocryst size & conc. suggest this is a cx tuff. Although no layering is noted. Note m foliated & crudely banded at 159.35-161.0m fol'n bottom ctc	 60 80	- vw serz - w loc mod qtz veins.	tr-3% py, ave tr vfg py 3% py at 159.35-159.8m as diss blebs & discon str parallel to fol'n	Note hem dis prox. to gouge areas Gouge/broken-up core at 167.0-167.7m. Litho: BCD #6682 162.0-165.0
168.50 TO 169.60	RHYODAC SILICEOUS TUFF, or POSS DYKE	Colour - lt grey-sl dull green Grain size - aph ax; f-c cx(?) vw foliated, crudely banded rhyodac siliceous tuff with fp phyric layers(?) No good evidence for this unit to be crosscutting. bottom ctc, shear fol'n	 80 70	- tr ser - silicified(?) - m pale green sel epz of fp phenos	1% fg py as hairlike stringers	
169.60 TO 172.90	RHY-RHYODAC QFP CX TUFF or POSS FLOW(?), minor AND/ MAFIC DYKES	Colour - wh-cream Grain size - aph ax; f-m cx w foliated, rather massive rhy-rhyodac QFP cx tuff or poss flow(?), very similar to 159.35-168.5m bottom ctc fol'n, approx.	 80 65	- tr ser - silicified ? - w sel ep(?) of fp phenos	NVS	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
172.90 TO 174.00	SILICEOUS TUFF & DAC TUFF LAM.	Colour - lt-m pale green & white Grain size - aph-v.fine v-m foliated, mod layered siliceous wh. tuffs & dac-aad f. tuff banding fol'n	 80 80	- w chl +/- ser	NVS	Poss bedded cherty tuff & volc tuffs above below tuffs & the sed(?) componente of tuffs at 176-178m
174.00 TO 176.00	DAC F TUFF, minor CX TUFF	Colour - grey-beige Grain size - fine w foliated, crudely layered dac f-m ash tuff, tr qtz eyes fol'n	 45 80	- vw ser - w calc & qtz 1-3mm irreg veins	NVS	
176.00 TO 180.30	INTERLAM SILTY ARG & DAC TUFF	Colour - dk brown & biege-lt grey Grain size - v.fine-fine v-m foliated, disrupted layered look in interlam silty arg & dac tuff. Disrupted look poss due to synsed bx/slumping layering fol'n	 70 80 65 80	- v-m biotite(?) - v-m ser - w loc m gashlike calc veins	NVS	Litho: BCD #6683 178.0-180.0m Pseudobx look at ie) 178.5 looks as if seds squeezed around ash tuff patches/ isolated frags.
180.30 TO 181.05	CHERT, CHERTY TUFF & DAC TUFF INTERLAM	Colour - lt grey & lt-med grey Grain size - aph-v.fine w foliated, well lam. chert/cherty tuff/dac tuff ave <1-2mm indivd. lams layering bottom ctc, approx.	 70 80	- w 1-3cm thick milky wh qtz veins - tr ser	NVS	
181.05 TO 188.10	AND-DAC DYKE? (POSS A TUFF) E.O.H.	Colour - m dull green Grain size - v.fine w foliated, rel massive and-dac dyke(?). 10% fp as wh. specks throughout evenly distributed. Homog. unit fol'n	 30 60	- vw-v irreg qtz veins - vw-v chl +/- ser - v calc 1-2mm veins	NVS	Has sl wh speckled appearance. Litho: BCD #6684 185-188.0m

Sample	From (m)	To (m)	Length (m)	SIO2 %	AL2O3 %	CAO %	MGO %	NA2O %	K2O %	FEO %	MNO %	TIO2 %	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	AS PPM	SB PPB	SR %	ZR %	TOTAL %
BCD6644	8.00	11.00	3.00	51.56	16.37	4.21	4.29	5.04	1.17	11.2	.19	.59	.057	73	78	17	1.1	5	27	6	.05	.005	94.74
BCD6645	16.50	19.50	3.00	62.47	18.82	1.89	2.45	4.56	3.54	2.5	.04	.35	.193	21	32	9	.6	10	3	1	.03	.006	96.85
BCD6646	24.00	27.00	3.00	47.26	18.14	6.25	6.31	4.08	.13	10.28	.3	1.0	.016	49	91	21	1.9	5	29	7	.07	.005	93.83
BCD6647	33.00	36.00	3.00	62.78	18.4	1.45	1.2	2.75	4.22	3.36	.03	.36	.955	39	435	232	47.6	120	16	6	.01	.010	95.53
BCD6648	48.00	51.00	3.00	47.64	17.51	7.03	3.97	3.12	1.67	8.79	.24	1.01	.044	60	93	15	2.5	5	2	1	.04	.005	91.04
BCD6649	70.00	73.00	3.00	53.89	17.64	3.46	3.97	5.16	0.97	8.35	0.24	0.98	.024	48	98	7	1.5	30	30	1	.02	.007	94.72
BCD6650	87.50	90.50	3.00	49.26	16.45	4.22	4.44	5.42	.81	11.48	.26	1.14	.028	167	103	23	2.0	15	4	1	.02	.005	93.52
BCD6685	100.00	103.00	3.00	49.19	19.00	4.78	3.48	5.8	0.5	10.74	0.29	1.28	.021	110	111	22	2.5	10	36	2	.02	.005	95.13
BCD6676	115.00	118.00	3.00	52.26	17.9	3.17	4.16	6.61	0.54	8.84	0.22	0.85	0.026	148	61	4	1.9	5	2	1	.04	.005	94.61
BCD6677	127.00	130.00	3.00	64.79	16.8	1.82	1.93	3.68	3.38	3.34	.09	.33	.084	13	54	9	.6	10	7	1	.01	.007	96.27
BCD6678	136.50	139.50	3.00	73.83	12.39	2.37	0.44	1.82	2.75	1.06	.03	.23	.155	10	33	38	1.3	20	14	3	.01	.005	95.09
BCD6679	149.00	152.00	3.00	64.74	14.97	3.36	2.26	2.11	2.48	3.76	.1	.38	.078	15	53	10	.7	5	13	2	.01	.006	94.25
BCD6680	155.00	157.00	2.00	66.67	8.34	6.6	.93	.67	1.53	4.42	.1	.34	.128	65	213	15	1.1	5	26	1	.01	.005	89.75
BCD6681	158.00	160.00	2.00	45.11	14.3	10.77	5.27	1.13	1.31	8.8	.28	.61	.075	121	67	14	.5	5	7	8	.01	.005	87.66
BCD6682	162.00	165.00	3.00	73.8	13.4	2.49	0.52	0.56	3.66	1.13	.05	.19	.078	3	9	3	.5	5	4	3	.01	.005	95.88
BCD6683	177.50	180.50	3.00	43.58	14.84	7.41	4.39	.22	5.21	11.45	.33	2.42	.157	34	178	14	3.6	5	37	2	.01	.031	90.06
BCD6684	185.00	188.10	3.10	46.99	14.23	.69	6.87	2.09	.33	13.65	.33	2.06	.011	213	76	14	3.7	5	19	4	.02	.008	97.27

MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: MTS41

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SIC
PROJECT NUMBER: 305
CLAIM NUMBER: ESTELLE
LOCATION: NTS 92B/13

PLOTTING COORDS GRID: MTS
NORTH: 938.00S
EAST: 886.00E
ELEV: 630.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 0.00

COLLAR DIP: -90° 0' 0"
LENGTH OF THE HOLE: 178.90m
START DEPTH: 0.00m
FINAL DEPTH: 178.90m

COLLAR GRID AZIMUTH: 20° 0' 0"
COLLAR ASTRNOMIC AZIMUTH: 20° 0' 0"

DATE STARTED: July 9, 1987
DATE COMPLETED: July 11, 1987
DATE LOGGED: 0, 0

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: F. BOISVENU DRILLING LTD
CASING: 7.3M
CORE STORAGE: 6722 LAKES RD DUNCAN

PURPOSE: TO TEST THE MINE PACKAGE 85M DOWNDIP OF ZINC STRINGERS (0.21% Zn) IN MTS-27

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
30.50	-	-89° 0'	ACID	OK		-	-	-	-	-	
61.00	-	-89° 0'	ACID	OK		-	-	-	-	-	
91.40	-	-90° 0'	ACID	OK		-	-	-	-	-	
121.90	-	-89° 0'	ACID	OK		-	-	-	-	-	
152.40	-	-89° 0'	ACID	OK		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
0.00 TO 7.30	OVERBURDEN					casing
7.30 TO 113.90	DIORITE	Colour - dark green Grain size - med-coarse massive feldspar-phyric phases interlayered with more mafic-looking phases. 5% ilmenite crystals interstitial to feldspar crystals + pyroxenes - generally diorite has good intergranular texture. f.gr. dark green mafic dikes - carb-rich at: 11.5-11.9 29.85-30.5 32.7-33.8 47.5-47.7 53.3-53.85 60.1-62.2 91.1-92.8: feldspar-phyric chilled at lower contact	 50 70 50 45 45	pervasive carbonate alteration ilmenite is altered to white + reddish brown leucoxene lower in hole. 99.95-102.0 5-10% carbonate veins in more mafic phase of diorite. 108.2-108.4 carb. vein with angular diorite fragments	none	blocky core at: 83.0-87.8 91.1-96.6
113.90 TO 122.85	SILICIFIED ASH	Colour - light grey Grain size - fine massive tr. fsp crystals (mm-sized)		pervasively silicified - has cherty look. 5% chlorite veinlets throughout unit.	tr. diss py	113.9-122.85 blocky core throughout unit.
122.85 TO 147.60	FELDSPAR-PHYRIC DIORITE	Colour - dark green Grain size - fine-med. massive - upper contact sharp + chilled fgr. mafic dike at: 128.95-129.4 fgr., grey QFP dike at: 141.7-146.7	 90 40 55	pervasive weak carbonate	none	is this the same diorite as at the end of MTS-31?

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
147.60 TO 160.30	F(Q)P DIKE	Colour - light grey Grain size - med. massive 160.3m: contact	65	unaltered	none	blocky core at: 155.9-159.3
160.30 TO 178.90	DIORITE E.O.H.	Colour - dark green with light green patches Grain size - med.-coarse massive		10-15% epidote patches with elongate (1-2cm) amphibole crystals 1-2% epidote veins.	tr py	

Sample	From (m)	To (m)	Length (m)	SIO2 %	AL2O3 %	CAO %	MGO %	NA2O %	K2O %	FEO %	MNO %	TIO2 %	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	AS PPM	SB PPB	SR %	ZR %	TOTAL %
6959	114.90	118.00	3.10	63.99	14.11	3.28	2.44	5.82	0.51	2.13	0.05	0.32	0.016	273	47	8	0.8	5	3	2	.02	.007	92.69
6960	151.20	154.20	3.00	69.04	15.62	2.15	0.63	4.86	1.93	2.06	0.10	0.21	0.057	12	25	5	1.0	5	1	1	.03	.005	96.70

HOLE NUMBER: MTS42

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SIC
PROJECT NUMBER: 305
CLAIM NUMBER: THELMA FR
LOCATION: NTS 92 B/13

PLOTTING COORDS GRID: NTS
NORTH: 1441.00S
EAST: 396.00E
ELEV: 433.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 0.00

COLLAR DIP: -45° 0' 0"
LENGTH OF THE HOLE: 191.11m
START DEPTH: 0.00m
FINAL DEPTH: 191.11m

COLLAR GRID AZIMUTH: 20° 0' 0"

COLLAR ASTRNOMIC AZIMUTH: 20° 0' 0"

DATE STARTED: July 11, 1987
DATE COMPLETED: July 13, 1987
DATE LOGGED: 0, 0

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: F. BOISVENU DRILLING LTD.
CASING: 9.45M
CORE STORAGE: 6722 LAKES RD DUNCAN

PURPOSE: TO TEST THE SOUTHERN HORIZON

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
30.49	-	-44° 0'	ACID	OK		-	-	-	-	-	
60.96	-	-41° 0'	ACID	OK		-	-	-	-	-	
91.44	-	-38° 0'	ACID	OK		-	-	-	-	-	
121.92	-	-41° 0'	ACID	OK		-	-	-	-	-	
152.44	-	-41° 0'	ACID	OK		-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
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FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
0.00 0.00 TO 9.45	CASING OVERBURDEN					
9.45 TO 14.35	DIORITE	Colour - dull med. green Grain size - fine m-foliated/sheared, fg diorite. Has banded or streaky texture due to shearing 3-5% fg ilmenite grains bottom ctc ? shear	 35 40	- v chl - m-s calc veins/flood	nvs	1-5% fg leucoxene grains
14.35 TO 23.40	AND. F. TUFF, minor F. CX. TUFF (ALSO MINOR AND. DYKES)	Colour - m-dk green Grain size - fine M. foliated, crudely-well laminated and. tuff, minor f. crystal tuff layers and and. dykes. fol'n layering 14.35-16.6m: and. f. tuff mod. laminated 16.6-17.8m: crudely layered f. crystal tuff, f. and. tuff. 17.8-19.1m: m-s foliated, well laminated(?) and. f-ultra f tuffs. 19.1-20.1m: and. med green dyke with 5% <1-1mm stretched mafic f. phenos in a fp & chl gm. top ctc bottom ctc 20.1-23.4m: poorly-mod laminated, m green-vdk green and. tuffs Note minor 2-3mm pinkish lams poss cherty(?).	 65 40 65 45 45	- variable v-s chlz ie) 14.35-16.2 m 16.2-16.7 s 16.7-17.7 v-m 17.7-18.8 s 18.8-20.2 m 20.2-23.4 s - v-m irreg. 1-3mm calc +/- qtz veins throughout	NVS-tr py loc <1% py at 20.9m as <<1mm bands parallel to fol'n	Litho: BCD #6638 14.5-17.5m
23.40 TO 34.80	DACITE FP +/- QTZ EYE CRYSTAL TUFF	Colour - lt-m grey/purple & lt green spotted Grain size - aph-vf matrix; f-med crystals M foliated, rel massive looking dacitic fp phyric +/- qtz eye crystal tuff, with and. f. tuff or dykes. Fp phenos 10-20%, <1-2mm, ave 1-2mm, Qtz eyes tr-5% ave <1-1%, <1-1mm. fol'n 23.4-24.8m: dacite fp porph., lt-med grey, 10% fp, 1-2% vfg hematite.	 60	- tr-vv sericite, loc 2-m ser at 23.4-26.5 and 33.4-34.8m - silicified(?) at 26.5-33.4 +/- hem - v milky wh. qtz veins <1-2cm thick - selective s ep of 10-40% of the fp phenos, bright pist green, alteration as bands loc veinlike intensity, minor lenses 3 x 20mm - hemz/dusted at 26.5-33.4m	NVS	Note this unit v. similar to hem-rich fp phyric rocks in MTS-28 PF horizon area.

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		23.8-25.4m: dk green and. f. tuff or dyke(?) top ctc	60			
		25.4-26.0m: dac. fp porph., lt.-m grey, 15% fp, 1% qtz eyes.				
		26.0-26.05m: vfg diorite dyke				
		26.05-26.7m: lfm grey, f. dacite tuff/f. crystal tuff. 1% qtz eyes, 5-8% fp				
		26.7-34.0m: dac fp porph, med. grey-purple. 15-20% fp, tr-1% qtz eyes				Litho: BDC #6639 27.3-30.3m
		34.0-34.8m: lt grey-green dac QFP, 5% qtz eyes <5% fp phenos				
34.80 TO 37.50	DAC/RHYODAC F TUFF, minor AND. F. TUFF	Colour - lt.-m grey-green Grain size - vfine-fine m/m-s foliated, locally banded, dac. f. tuff/f. crystal tuff with minor and. tuff bands/layers (,5%). fol'n Note <1-3% qtz eyes <<1-1mm in most of the rhyodac tuff bottom contact	 80 40	- v-s serz ie) 34.8-36.8m: m-s 36.8-37.5m: m-v	NVS	Note folded and contorted look in banded sections.
37.50 TO 39.30	AND. CX TUFF(?)	Colour - dk green & pist green Grain size - v.fine-fine matrix; fine-med cx M-s foliated, poorly-crudely layered and(?) fp cx tuff & f. tuff. Original texture destroyed by alteration and fol'n but "cottonball" ep texture suggests this is a cx. tuff fol'n	 50	- s blk chlz throughout - s ep as bands/veins & cottonball texture sel epz of fp(?) phenos - v patchy broken up 1-2cm thick qtz veins	- <1-1% py as diss. blebs and m-cg, somewhat assoc. with ep alteration	Litho: BCD #6640 37.5-39.3m
39.30 TO 43.30	DACITE F. TUFF, F. CX TUFF & minor CHERTY TUFF	Colour - m-lt green, minor maroon-white Grain size - v.fine-fine v-m foliated, crudely-well laminated dacite f. tuff(20%), f. cx tuff(79%), well lam cherty tuff(1%). F. cx tuff includes 2-3% qtz eyes <1mm m. grey, & 2-3% fp phenos <1mm-1mm. layering bottom contact sharp	 60 70	- v-m ser +/- chl - vv <1-1cm Qtz veins - 2 bleached(?)	tr-<1% py	Litho: BCD #6641 40.0-42.8m

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
43.30 TO 48.70	DIORITE, FG & FP PORPH.	Colour - med green Grain size - vfine-fine gn; fine-med cx vv foliated - m/s sheared fp porph. diorite, sheared fg diorite shear 43.3-46.5m: m/m-s sheared fg diorite, somewhat streaky looking 46.5-48.6m: fp porhp. diorite 5% ragged fp phenos 1-2mm 48.6-48.7m: fg chill bottom contact	 50 45	- vv-v chl - loc m-s calc as floods/dissem, minor veins - tr sel ep of fp phenos	tr-<1% py	1-3% ilmenite (?) grains throughout No visible chill on top contact.
48.70 TO 52.40	DAC/DAC-AND F. TUFF, minor F. CX -LITHIC TUFF	Colour - m/m-dk green/grey Grain size - vf-f matrix; f cx; l frags vv-v foliated, crudely-poorly layered dac/dac-and tuff, and minor f. cx-lithic tuff fol'n bottom contact 48.7-50.3m: dac/dac-and f. tuff poorly layered (5-10mm) thick. layering 50.3-52.4m: dac/dac-and f. cx-lithic tuff, 1-5% frags 2-4mm elongate, dacitic, cx include 1-3% 1mm qtz eyes(?) and 1-5% <1-1mm fp phenos	 80 40 80	- m-v ser +/- chl, loc s at 49.5-50.2m - v-v/m qtz 2mm-15cm veins, ave 1cm, mainly parallel to fol'n	tr-<1% py	
52.40 TO 53.70	MONZONITE DYKE(?)	Colour - cream-biege, sl pink Grain size - med-coarse vv foliated(?), rel homog looking monzonite dyke?. 15-25% kspar, 40-50% plagioclase, 25-30% mafics.		- m bleached - v sel epz of fp(?)	- NVS - loc 1-3% py, <1% cpy at 55.5-53.7m	
53.70 TO 58.80	AND & AND-DAC TUFF/ CX TUFF, minor CHERTY TUFF	Colour - med. green, loc m-dk grey-brown chert Grain size - fine-coarse M foliated, porrly to well interlayered f. and-dacite tuff, and-dac cx tuff/ coarse tuff-lap tuff Also cherty tuff sections bottom contact layering 53.7-55.9m: interlayered f. tuff & fp rich (10-25%) and. dac. cx tuff.	 55 70	- vv-v chl - 2-m sel ep in and. cx tuff layers	- NVS Layers/beds 2-20cm, ave 10cm thick.	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		55.9-56.8m: interlayered f-m tuff & cx-lithic/ lapilli tuff, frags 2-10mm, 5-10%, cherty tuff, dac & and. tuff 56.8-57.7m: and-dac f. tuff. 57.7-58.8m: interlam. f. tuff (35%), f. cx tuff (30%), cherty tuff (35%).			cherty layers 6mm-3cm	
58.80 TO 64.90	AND.-BSLT FLOW	Color - dk green-sl purple Grain size - v.fine-aph, gn; f-c amyg M foliated, massive, variably amygdaloidal and-bslt flow. Amygdules are ellipsoid (1 x 2mm) to stretched lenses (1 x 10mm) <1% - areas of 15% amygdules fol'n	70	- tr-vv chl - sel ep as amyg infillings +/- qtz +/- chl - vv irreg <1-2cm thick qtz veins	MVS-loc 1% ie) 63.7-63.8m: <1mm discon str & ag dissem.	Litho: BCD 86642 59.5-62.5m
64.90 TO 77.80	BASALT DYKE or FLOW(?)	Colour - dk brown-grey, sl green Grain size - aph-vf matrix; f-c cx/amyg Vv-v foliated, somewhat heterogeneous looking, but non-layered, basalt dyke or flow		- vv-m chl(?), bi(?) ie) 64.9-72.2 vv 72.2-77.8 v-m	MVS Loc <1-2% py & tr cpy at: 69.2-69.3; 1% py, <1% cpy 65.9-77.4; <1-2% py	similar to NTS-39 or 40 Litho: BCD 86643 72.5-75.5
77.80 TO 80.00	AND. TUFF/ CX TUFF	Colour - dk-m green Grain size - vf matrix; f cx Vv-v foliated, crudely-poorly layered and. f. tuff & (20%) cx tuffs. Cx tuffs are m green, qtz (1%, 1mm round eyes) - px(?) (chl stretched 1mmx0.1mm clots) fol'n layering ??	45 80 30	- vv-m chl variably ie) 77.8-78.8m m 78.8-79.8 vv 79.8-80.4 v-m - v <1-1mm calc veinlets	MVS-tr py poss tr cpy?	
80.00 TO 81.05	CHERT & CHERTY TUFF	Colour - m-lt grey & m-dk green Grain size - aph, aph-vf vv-v foliated layered chert, & cherty tuff(?) cut by numerous qtz veins chert at 80.55-81.05 includes a 10cm thick qtz phyric (2%, <1-1mm) tuffaceous chert band. Cherty layers 1-10mm thick Tuffaceous chert(?) is cut by qtz +/- calc +/- chl +/- leucoxene, locally brecciated. bottom contact, sharp layering	50 60	- m chl + leucoxene(?) proximal to qtz veins (80.0-80.55) - m qtz +/- calc 3mm-3cm irreg. milky wh. veins.	MVS-tr py	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
81.05 TO 108.20	DIORITE	Colour - m-dk green +/- white Grain size - fine-coarse variably vw-s sheared fp porph. diorite, equigranular diorite. Mg diorite is 50% fp, 5% ilmenite(?), 45% mafics. Fp porph diorite is 2-3% <1-1mm fp phenos in a vfg m-dk green gm. bottom contact, sharp	20	- v chl throughout - v-l calc as floods +/- veins - v/v-m qtz 2mm-5cm veins	MVS - tr py - Note cpy-py bleb in qtz vein at 82.1m	
		81.05-82.3m: fp porph diorite shear 82.3-86.7m: v-m sheared mg diorite, somewhat streaky fabric, note 5-10% stretched leucoxene, 5% ilmenite.	75	- v-m chl - m-s calc as floods & dissem. - fp locally sel m epz		
		86.7-88.4m: m sheared fg diorite, dull m. green		- m-s calc 1-2mm veins + flood		
		88.4-94.0m: mg diorite				
		94.0-94.4m: brecciated & veined mg diorite		- m chl veins 1-3mm		
		94.4-103.8m: mg diorite				
		103.8-105.5m: v fp porph. diorite (transition to fp porph diorite)				
		105.5-108.2m: Fp porph. diorite, dull med. green. Last 10cm chilled margin.				
108.20 TO 117.20	AND. CX TUFF/TUFF, or DIORITE	Colour - dk green & brownish-grey & lt grey Grain size - fine-med. Vv foliated, massive and. cx tuff or diorite. Locally poorly layered? at 109.5-110.8m		- vw-v chl - m calc +/- hem <1-3mm veins & gashes - loc v bleached	MVS	Note hem throughout as blebs or hemz frags, also as calc-hem veins & fracture coatings. Internally faulted as seen by slickenlines on calc veins Litho: BCD # 111.0-114.0
117.20 TO 121.00	DACITE CX-LITHIC TUFF	Colour - dk brown-biege Grain size - vf matrix; m-c cx; frags-l M foliated, strange leucoxene bearing dacite(?) tuff, locally cx rich, locally fragmental		- vw-m ser +/- chl - loc s bleached (carb altered?) - m-s <1-1mm calc creamy veinlets throughout, loc crackle breccia over 10cm	MVS-tr py - locally note 1mm stringer	Litho: BCD # 119.3-120.5
121.00 TO 122.00	ARGILLITE/ & RHYODAC CX-LITHIC TUFF	Colour - cream-buff & m-dk grey Grain size - vfine-aph argillite; vf-c cx tuff V. foliated interlayered argillite/cherty argillite (50%) & rhyodac. qtz-fp phyric cx tuff. layering	50	- v serz in rhyodac - s calc <1-1mm veins in argillite - minor clay-ser as gouge planes	<1-2% py as dissem blebs & <1mm discon stringers	Geochem: BCD #

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
122.00 TO 129.90	RHYODAC QFP CX TUFF	Colour - buff-creaa Grain size - vf-f matrix; f-c crystals Vw-w foliated		- vw serz, loc s serz along shears	tr-2% py as vfg blebs & dissea	Note 2-m density of shears/fractures, suggest close proximity to a fault zone Litho: BCD # 127.8-129.8
129.90 TO 153.20	FAULT ZONE	Colour - wh-biege & lt-m grey, loc sl green Grain size - vf matrix; f-m crystals Fault zone includes sections of gouge/milled-up bx, also rhyodac-dac cx tuffs with intermittent shears/gouges bottom contact	65	- variable w-s serz +/- clay	MVS-tr py	bottom contact of zone subjective
153.20 TO 162.70	RHYODAC to DACITE CROWDED CX TUFF/TUFF & minor CHERT	Colour - lt-m grey Grain size - vf matrix; f-m cx W-m foliated, crudely layered rhyodac-dac crowded FQP cx +/- lithic tuff		- tr-m serz	tr py	Litho: BCD # 154.0-157.0m
162.70 TO 163.30	DIORITE DYKE(?)	Colour - dk grey - sl green Grain size - vf matrix/groundmass; f-c cx S sheared diorite dyke shear bottom contact, sharp	60 65	- vw chl +/- ser - s calc flood/dissem. throughout	tr-1% py as blebs	
163.30 TO 176.70	DAC-RHYODAC APHYRIC TUFF, minor CX TUFF	Colour - lt grey-sl biege Grain size - very fine W-m foliated, massive rel. homogeneous looking dac-rhyodac f. tuff		- tr-v serz	tr-<1% py	Litho: BCD # 169.5-172.5
176.70 TO 181.80	TUFFACEOUS CHERT	Colour - m-lt grey Grain size - aph-vf, loc f cx W foliated, rel massive looking tuffaceous chert?		- w, loc m 2-10mm qtz veins, irreg & parallel to foliation - poss silicified(?)	tr-<1% py	Litho: BCD # 178.7-180.2m
181.80 TO 182.40	DACITE-AND F. TUFF	Colour - m. dull green-grey Grain size - fine S foliated & crenulated/sheared dac-and. tuff		- m irreg calc 1-5mm veins	<1% dissem fg py	
182.40 TO 186.30	TUFFACEOUS CHERT	Colour - lt-m grey Grain size - aph-v.fine Vw-w foliated, massive locally crudely layered tuffaceous chert		- tr ser - poss silicified (?)	<1% py, fg dissem.	Note bottom contact zone a breccia above sharp irreg veil preserved chert-diorite contact Litho: BCD # 184.6-186.1m

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
186.30 TO 191.11	DIORITE E.O.H.	Colour dk green & wh Grain size - med Nil-mod sheared mg diorite		- vw chlz - loc a-s calc flood/dissem	- tr dissem. py	Note near contact abundance of streaky tan-a brown leucoxene grains 1-3mm

Sample	From (m)	To (m)	Length (m)	SIO2 %	AL203 %	CAO %	MGO %	NA2O %	K2O %	FEO %	MNO %	TIO2 %	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	AS PPM	SB PPB	SR %	ZR %	TOTAL %
BCD6638	15.50	18.50	3.00	46.29	16.52	7.69	6.69	1.12	3.45	8.39	.24	.77	.060	67	70	17	1.0	5	20	8	.02	.005	91.24
BCD6639	27.00	30.00	3.00	65.98	14.48	2.03	1.1	3.41	4.61	3.90	.10	.36	.097	3	44	5	0.7	5	1	1	.03	.005	96.10
BCD6640	37.50	40.50	3.00	47.57	16.64	7.64	5.48	0.35	3.13	10.9	.20	.86	.042	197	81	17	1.6	15	23	3	.05	.005	92.86
BCD6641	41.00	43.00	2.00	58.07	17.19	2.98	5.21	3.55	1.23	8.03	.13	.94	.041	35	109	21	1.0	5	26	2	.03	.005	97.41
BCD6642	59.50	62.50	3.00	51.56	15.32	6.22	5.19	4.35	0.49	12.24	.25	1.54	.012	174	97	8	2.7	10	6	5	.03	.007	97.2
BCD6643	73.00	76.00	3.00	49.43	21.28	3.65	5.41	3.9	3.75	8.64	0.24	1.06	.094	106	84	21	1.6	5	36	3	.03	.005	97.49
BCD6686	111.50	114.50	3.00	47.46	19.46	5.27	3.78	5.67	1.26	8.95	.22	1.01	.027	22	74	13	1.0	15	1	1	.03	.005	93.13
BCD6687	119.00	121.00	2.00	52.81	17.72	3.17	4.85	3.11	4.23	9.05	.24	1.01	.108	68	86	19	1.0	10	33	1	.02	.005	96.33
BCD6688	127.00	130.00	3.00	73.96	11.99	1.64	1.17	0.86	5.97	1.85	.05	.18	.058	5	19	9	.7	5	12	3	.01	.005	97.75
BCD6689	154.50	157.50	3.00	69.36	15.32	0.97	1.72	3.11	2.86	3.52	.09	.34	.069	16	53	14	.6	5	9	3	.01	.009	97.39
BCD6690	170.00	173.00	3.00	68.54	14.32	3.12	0.74	3.33	3.00	2.30	.07	.32	.067	11	37	3	.9	5	8	2	.01	.006	95.83
BCD6691	177.50	180.50	3.00	68.98	15.23	1.50	.66	3.65	3.43	2.6	.06	.35	.073	7	31	8	.9	10	121	4	.01	.009	96.55
BCD6692	184.00	187.00	3.00	70.63	14.39	2.02	.93	.20	4.94	2.25	.06	.29	.080	13	42	4	1.0	5	4	3	.01	.006	95.79

MINNOVA INC.
DRILL HOLE RECORD

HOLE NUMBER: MTS43

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: MTS
PROJECT NUMBER: 305
CLAIM NUMBER: RICHARD 111
LOCATION: NTS 92B/13

PLOTTING COORDS GRID: MTS
NORTH: 855.00S
EAST: 758.00E
ELEV: 648.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 0.00

COLLAR DIP: -50° 0' 0"
LENGTH OF THE HOLE: 184.70m
START DEPTH: 0.00m
FINAL DEPTH: 184.70m

COLLAR GRID AZIMUTH: 40° 0' 0"
COLLAR ASTRNOMIC AZIMUTH: 40° 0' 0"

DATE STARTED: July 12, 1987
DATE COMPLETED: July 14, 1987
DATE LOGGED: 0, 0

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: F. BOISVENU DRILLING LTD
CASING: 1.8M
CORE STORAGE: 6722 LAKES RD. DUNCAN

PURPOSE: TO TEST THE WESTERN EXTENT OF ZINC STRINGERS IN MTS-27 (MONA AREA)

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments	Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
30.50	-	-48° 0'	ACID	OK		-	-	-	-	-	
61.00	-	-48° 0'	ACID	OK		-	-	-	-	-	
91.40	-	-47° 0'	ACID	OK		-	-	-	-	-	
121.90	-	-47° 0'	ACID	OK		-	-	-	-	-	
152.40	-	-47° 0'	ACID	OK		-	-	-	-	-	
-	-	-	-	-		-	-	-	-	-	
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LOGGED BY: G. WELLS

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
0.00 TO 1.80	OVERBURDEN					casing
1.80 TO 34.50	DIORITE	Colour - greyish green Grain size - med. massive with foliated sections - feldspar-phyric 15-20% fsp crystals foliated sections at: 7.5-8.4 12.4-15.6 8.1m chilled lower contact	 50 55	pervasive carbonate alteration 5% leucoxene after ilmenite in foliated zones; leucoxene is reddish brown colour	none	
34.50 TO 75.00	FELSIC ASH TUFF	Colour - grey with greenish grey sections Grain size - fine weakly foliated 36.1m 44.9-45.8: minor fault gouge. 52.0 51.3-51.7: fault gouge agr, carb-rich, green diorite dikes at: 63.8-64.3 65.35-65.6 65.0m	 60 50 50	34.5-48.5: weakly sericitic with tr-1% carb. veinlets 48.5-58.7: weak to moderate chlorite-sericite alteration 58.7-75.0: moderately sericitic with silicified patches (core light grey in colour)	34.5-36.1: 3-5% py as fgr. disseminations and streaks parallel to foliation. 36.1-45.8: tr py as disseminations and stringers - locally enriched. 41.75-42.4: 1% v.fgr. light brown dust interstitial to grain boundaries = sph ? 43.7-44.6: 3% v.fgr. pyrite 45.8-58.7: 2-3% diss. py 58.7-61.8: 1-2% py, tr cp as stringers 61.8-63.8: 10-15% py, 1-2% cp primarily as stringers parallel to foliation 64.3-75.0: 1-2% py, tr cp as stringers	 zinc = 39 ppm 48.5-58.7: unit more intermediate looking than surrounding felsic rocks. -confirmed by chemistry

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
75.00 TO 79.30	PYRITIC VOLCANI-CLASTIC	Colour - grey Grain size - fine approx. 10-15% cherty fragments in f.gr. ashy matrix. fragments up to 1 x 2cm, generally 2-3mm diameter; most are subrounded - no apparent grading. fragments consist of f.gr. grey chert and grey to light grey felsic ash, have the odd fragment of semi-massive py - matrix is also pyritic. 75.0m: contact 77.5m: foliation sericitic felsic ash inclusion at: 76.0-76.3 76.3m	 60 60 40	weakly sericitic	5-7% v.fgr. pyrite - primarily in matrix	- correlates with pyritic ash in MTS-38 which also has fragmental look.
79.30 TO 143.35	FELDSPAR PHYRIC CRYSTAL TUFF/ASH	Colour - greenish grey Grain size - fine 5-10% feldspar crystals in weakly defined beds interlayered with fgr. felsic ash. 86.0m 92.9m: bedding - tr qtz eyes 116.0m: foliation 119.6-120.7: fgr.-mgr. diorite dike, green, carb-rich. 122.0-122.1: fault gouge 122.0m: foliation 113.0-143.35: feldspar-rich beds disappear - unit fgr. ash 128.0m: foliation 131.4-143.35: intense fault gouge thin (<1cm) black streaks in zone = argillite ??-has very clay-like look from 137.5 to 140.2 approx 1-2cm wide and parallel to core axis.	 50 40 30 50 45	weak patchy sericite alteration	tr-1% diss. py and the odd py stringer except where noted below. 100.45-102.4: 5% py, tr cp - primarily as stringers. 111.6-125.8: 1-2% py, tr cp as stringers and disseminations semi-massive py-cp stringers at 120.75-120.8 - py-cp stringer at: 123.75-123.8 - py occurs as cgr. "balls" 7-8mm in diameter. 125.8-127.25: 10% py, tr-1% cp as stringers in felsic ash - no preferred orientation to stringers 127.25-130.5: 1% diss py 130.5-131.1: 25% py, 5% cp as stringer as approx. 30 to CA 131.1-133.4: 1% py as disseminations and stringers 133.4-134.2: 25% py, tr-1% cp as massive stringers within fault zone	131.4-143.35: expression of Fortuna Fault

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		contact between fault zone and Andesite is sharp	30		134.2-143.35: tr-1% diss py	
143.35 TO 152.40	ANDESITE CRYSTAL TUFF	Colour - green Grain size - fine-med. 10-15% weakly epidotized feldspar crystals occur as beds 149.6m: bedding more felsic bed at: 148.1-149.0	 50	weak chlorite-epidote	1% diss. py	looks somewhat similar to Diorite except for sulphide content and weak bedding.
152.40 TO 174.20	FELSIC to INTERMED. ASH	Colour - grey Grain size - fine weakly foliated. unit consists of f.gr. ash 158.0m 166.0m fault gouge at: 172.9-173.2	 50 50	weak sericite and patchy silicified areas	1-2% py, tr cp primarily in stringers 156.95-157.1: 40% py, tr-1% cp associated with qtz-chl vein/stringer 158.6-158.65: semi-massive py stringer associated with q.v. 166.4-168.3: 3-5% py, tr-1% cp as disseminations and stringers.	
174.20 TO 179.65	FELDSPAR-PHYRIC DIORITE	Colour - green Grain size - fine 5% feldspar phenocrysts - massive chilled at both contacts 174.2m: contact 179.65m: contact	 30 45	unaltered	none	
179.65 TO 184.70	FELSIC ASH/ CRYSTAL TUFF E.O.H.	Colour - greenish grey Grain size - fine weakly foliated 3-5% qtz crystals		weakly sericitic.	tr py stringers.	

HOLE NUMBER: MTS43 | ASSAY SHEET | DATE: 21-December-1987

Sample	From (m)	To (m)	Length (m)	ASSAYS Cu %	Zn %	Ag g/T	Au g/T	GEOCHEMICAL Cu ppm	Zn ppm	Ag ppm	Au ppb	Ba ppm	COMMENTS
6547	34.50	36.10	1.60					176	405	1.0	10		
6548	41.75	42.40	0.65					36	39	0.5	5		
6549	43.70	44.90	1.20					45	22	0.7	5		
6550	60.80	61.80	1.00					102	36	0.4	5		
6601	61.80	62.80	1.00	.031	0.03	3.0	0.26						
6602	62.80	63.80	1.00					1450	64	1.8	60		
6603	75.00	76.30	1.30					248	16	1.2	30	1400	
6604	76.30	77.80	1.50					283	17	1.0	25	1250	
6605	77.80	79.30	1.50					234	19	0.9	15	1340	
6606	100.45	101.40	0.95					534	28	0.4	5		
6607	101.40	102.40	1.00					960	26	0.7	5		
6608	130.50	131.10	0.60	1.29	0.01	10.4	0.18						
6609	133.40	134.20	0.80					6700	32	2.3	5		
6610	166.40	167.30	0.90					870	355	0.8	15		
6611	167.30	168.30	1.00					1500	41	0.9	5		

Sample	From (m)	To (m)	Length (m)	SIO2 %	AL2O3 %	CAO %	MGO %	NA2O %	K2O %	FEO %	MNO %	TIO2 %	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	AS PPM	SB PPB	SR %	ZR %	TOTAL %
6961	48.50	51.30	2.80	58.15	19.98	1.51	3.42	4.85	2.34	5.62	0.20	0.91	0.112	23	110	16	1.4	5	26	1	.02	.005	97.1
6962	68.90	71.90	3.00	76.83	12.20	0.25	0.85	0.22	3.55	3.52	0.01	0.16	0.114	168	2083	41	1.1	10	9	1	.01	.005	97.71
6963	89.90	93.00	3.10	71.32	14.79	1.08	3.67	0.49	2.92	2.95	0.08	0.36	0.108	6	47	4	0.8	5	9	1	.01	.005	97.78
6964	120.70	123.70	3.00	73.20	12.84	0.48	2.73	0.82	2.77	4.37	0.04	0.25	0.140	155	29	3	0.9	5	8	1	.01	.005	97.64
6965	145.10	148.10	3.00	59.73	17.30	1.57	6.64	2.80	1.22	7.46	0.10	0.77	0.128	36	30	11	1.0	5	28	1	.02	.006	97.75
6966	181.70	184.70	3.00	69.97	13.98	1.58	2.74	3.11	1.66	3.01	0.08	0.26	0.077	8	23	9	0.4	5	1	3	.01	.006	96.47

HOLE NUMBER: MTS44

MINNOVA INC.
DRILL HOLE RECORD

IMPERIAL UNITS: METRIC UNITS: X

PROJECT NAME: SIC
PROJECT NUMBER: 304
CLAIM NUMBER: BELLE
LOCATION: NTS 92 B/13

PLOTTING COORDS GRID: MTS
NORTH: 178.00S
EAST: 387.00W
ELEV: 422.00

ALTERNATE COORDS GRID:
NORTH: 0+ 0
EAST: 0+ 0
ELEV: 0.00

COLLAR DIP: -70° 0' 0"
LENGTH OF THE HOLE: 96.62m
START DEPTH: 0.00m
FINAL DEPTH: 96.62m

COLLAR GRID AZIMUTH: ° ' "

COLLAR ASTRNOMIC AZIMUTH: 40° 0' 0"

DATE STARTED: July 14, 1987
DATE COMPLETED: July 15, 1987
DATE LOGGED: 0, 0

COLLAR SURVEY: NO
MULTISHOT SURVEY: NO
RQD LOG: NO

PULSE EM SURVEY: NO
PLUGGED: NO
HOLE SIZE: NQ

CONTRACTOR: F. BOISVENU DRILLING LTD
CASING: 4.88M
CORE STORAGE: 6722 LAKES RD DUNCAN

PURPOSE: TESTS THE SHALLOW DIPPING MINE PACKAGE IN THE CENTRAL PANEL (W OF MTS-29) TO THE DIOR DYKE LEVEL

DIRECTIONAL DATA:

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
30.49	-	-69° 0'	ACID	OK	
60.98	-	-68°30'	ACID	OK	
91.44	-	-67° 0'	ACID	OK	

Depth (m)	Astronomic Azimuth	Dip degrees	Type of Test	FLAG	Comments
-	-	-	-	-	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
0.00 TO 4.88	CASING/ OVERBURDEN					
4.88 TO 33.20	RHY-RHYODAC FP-QTZ EYE F. CX TUFF	Colour - lt. grey-green Grain size - aph-vf matrix; fine cx W foliated, mottled heterogeneous looking rhy-rhyodac fp (5%, <1-1mm) qtz-eye (1-3%, <1mm) f. tuff/f.cx tuff. foliation to 12.0m, 5-15 layering? ? Poss. minor siliceous tuff, in crudely banded sections (ie 22.0-26.5m) generally fp phyric throughout with fp rich areas in an aph lt grey matrix fol'n at 29m Note 28.0-33.2 Vw foliated, more homogeneous/ massive looking rhyodac fp cx tuff/ siliceous tuff with tr-1% <1mm Qtz eye in vf-aph matrix, loc brecciated	5 15 30 10 15	Tr - s/s ser ie) tr-vw 4.88-5.7m v-s 5.7-8.1m tr-vw 8.1-8.7m s-v 8.7-10.2m vw-v 10.2-12.2m s 12.2-12.6m tr-v 12.6-23.8m s-s 23.8-24.2m tr-vw 24.2-27.5m s-v 27.5-28.6m vw-v 28.6-33.2m - silicification(?) as loc irreg mottled patches, (but qtz phyric?)	1-5% py fg disseм & stringers, ave 1-2% dissem throughout. Stringers range 2-40mm py +/- chl +/- qtz at: 9.0m; 5mm; py-chl-qtz, c/a 55 13.5m; 2cm, py-chl, c/a 40 15.1m; 2cm, py-qtz, c/a 30 15.4m; 1.5cm, py-chl, c/a 60? 19.5m; 3mm, py-chl, c/a 0-10 22.6m; 3mm, py-qtz, c/a 0-10 23.4m; 6mm, py-qtz, c/a 45 28.7m; 3cm, py-chl-qtz, c/a 25 29.0m; 1cm, py-chl, c/a 15-20 cg-ag py 32.8m; 2mm, py-chl, c/a 5	Note mottled texture due to silicification(?), lt grey irreg vague bordered patches/veins are finely qtz phyric Litho BCD 86556 6.0-9.0m
33.20 TO 36.40	RHYODAC TUFF & CHERTY TUFF	Colour - lt grey & lt green-grey Grain size - aph-v.fine; vf-f cx Mod foliated, loc mod layered, rhyodac tuff with cherty tuff fragments(?) appear as if beds have been broken-up by soft sed deformation, as bx has crackle appearance without the fractures & infilling veins. fragments (broken beds?) are 2-8cm, subrounded with minor rotation, aph-vfg cherty tuff in a rhyodac tuff/FPQ f. cx tuff matrix (similar to above rhyodac) fol'n layering (cherty tuff).	 15 15	- tr sericite in cherty tuff, vw-loc mod serz in rhyodac. tuff.	3-5% fg py (ave 3%) as diss & 1-3mm diss bands mainly within the cherty tuff c/a 5-20	Note layering could be rotated in an individual fragment. Not a conspicuous bx texture. Litho: BCD 86557 33.4-36.2
36.40 TO 39.30	RHYOBAC. TUFF/F. CX TUFF, minor SILICEOUS TUFF	Colour - lt green-grey Grain size - vf-aph; fine cx W loc m foliated, crudely banded rhyodac tuff/f. cx tuff with minor siliceous tuff. Somewhat mottled looking/crudely banded fol'n 15-20 Qtz eyes 1-2%, <1mm greasy looking; FP phenos loc 1-3%, <1mm	 20	- tr sericite	<1-3% fg py, ave <1% py	

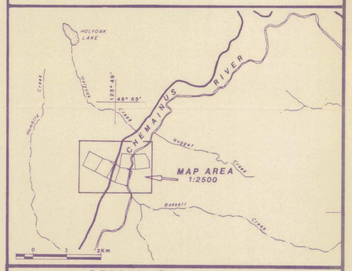
FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
39.30 TO 44.80	TUFFACEOUS CHERT	Colour - vlt grey sl green tinge Grain size - vfg-aph. Vw foliated, poorly layered/banded tuffaceous chert. Note tr-1% <1mm qtz eyes throughout & vfg FP in ash. Loc v. cherty aph. tuff at: 43.4-43.8m 44.7-44.8m fol'n banding 5-10	 25 10	- nil-tr sericite - loc lt grey 4-6mm qtz veins, c/a - poss silicified tuff(?)	tr-2% fg diss py, ave tr-<1% py. Loc py as discon stringers in irreg. fractures at 43.7m	Note trace <<1% blk oxide grains diss. Litho: BCD #6558 39.9-42.9m
44.80 TO 45.40	RHYODAC CI TUFF or FP RICH VEIN	Colour - vlt grey to creamy white Grain size - aph matrix Vw-w foliated, crudely banded, FP rich, bleached & silicified rhyodac. tuff or FP rich vein. top contact, sharp bottom contact banding	 30 35 30	- nil to loc v sericite - s bleached?, w sel ep. - silicified proxinal to veins	2% py as m-cg diss. grains & blebs	Note sharp upper & lower contacts Litho: BCD #6559 44.8-45.4m
45.40 TO 51.00	RHYODAC F. TUFF	Colour - lt. grey-green Grain size - vf-f W foliated, rel massive looking rhyodac f. tuff Note vf <<1mm 1% scattered qtz eye & white speckled appearance due to vf 5% FP. fol'n (10-25)	 15	- tr-w, ave vw ser	tr-2% fg diss py, ave <1% py	
51.00 TO 51.60	TUFFACEOUS CHERT or RHY TUFF	Colour - lt grey & lt green Grain size - aph-vf Vw foliated, massive looking, aph-vfg tuffaceous chert or rhy tuff. Cloudy look to cherty/ tuffaceous chert due to inclusions & ash particles fol'n	 10	nil-tr sericite	tr py	upper & lower contacts subjective by composition. Tr-<<1% blk vfg oxide diss. Litho: BCD #6560 51.0-51.6m
51.60 TO 59.00	RHYODAC F. TUFF, minor SILICEOUS TUFF	Colour - vlt-lt grey with green tinge Grain size - aph-vf; vf-f cx Vw-w foliated, massive locally mottled rhyodac tuff/f. cx tuff & minor siliceous tuff. fol'n to 56.0m to 59.0m 51.6-56.6: rhyodac f. tuff/cx tuff with 2-3% <1mm qtz eyes in aph. matrix	 40 10	- tr-vw ser loc w-m ie) 51.6-58.0 tr-vw ser 58.0-59.0 w-m ser - loc patchy silicification(?)	tr py	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
		55.25-56.6: rhyodac f. tuff/cx tuff, 1-2% Qtz eyes <1mm, 3% FP phenos <1mm. 56.6-58.30: vlt grey aph-vfg siliceous tuff with mottled patchy silicification(?) at 56.25-56.75m 58.30-59.0: rhyodac. t. tuff, minor (1%) qtz eyes		- v-m serz		Note silicif. & devitn. texture(?)
59.00 TO 65.80	AND-DACITE TUFF minor DAC/AND F. TUFF	Colour - m-lt grey & med green Grain size - fine M-m foliated, rel homogeneous and-dac f. tuff fol'n 5-15 top contact, gradat. 59.0-59.6: dac-and f. tuff, m-lt green 59.6-62.6: dac/dac-and chlz f. tuff, m green 62.6-63.9: dac. f. tuff serz, lt grey-sl green 63.9-65.8: dac-and f. tuff bottom contact, sharp	15 75	- vv-s chl +/- ser 59.0-59.6m: vv-v ser +/- chl 59.6-62.6m: v-m chl +/- ser 62.6-63.9m: s-m ser +/- chl 63.9-64.8m: m chl +/- ser 64.8-65.8m: v-m chl +/- ser	tr <1% fg py	Litho: BCD #6561 59.6-62.6m
65.80 TO 66.30	TUFFACEOUS CHERT, minor F. AND-DAC TUFF	Colour - lt grey-green Grain size - aph & fine Vvv foliated massive tuffaceous chert with minor and-dac tuff at 66.0-66.1m bottom contact	80	- v chl +/- ser in tuff	NVS	Litho: BCD #6562 65.8-66.3m tuff not part of sample - poss silicifn rather than tuffaceous chert because of cloudy "patches seen" lower in section.
66.30 TO 69.90	AND. TUFF, F. CX TUFF	Colour - med green-grey Grain size - vf matrix; fine cx v-m foliated interlayered and tuff & f. cx tuff. fol'n 5-40 66.3-68.4m: and. f. cx tuff, 15% <1-1mm FP phenos 68.4-69.0m: and. f. tuff 69.0-69.9m: and f. cx tuff-f. tuff bottom approx.	5 40 60	- tr-m chl +/- ser, variable chlz within patchy silicified section. 66.3-68.4m: vv-m chl +/- ser 68.4-69.0m: m chl 69.0-69.3m: v chl +/- ser 69.3-69.9m: m/m-s chl +/- ser - patchy selective silicifn as round 0.5cm-3cm areas (25%) ie) 66.3-68.4m - v sel sausz of FP phenos in cx tuffs - v (<5%) pathcy (.5cm) ep ball alta at 66.9-67.3	NVS-tr py	

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
69.90 TO 76.00	CHERTY TUFF & AND-DAC T. TUFF, INTERLAM.	Colour - lt-m green-grey, also lt grey Grain size - aph-chert; vf-f tuffs M foliated, poorly-well laminated f. and-dac tuff, cherty tuff & chert. Chert tuff-chert layers 1-20mm, ave 3mm. layering 70.0m 74.6m 69.9-70.05m: chert/chert tuff (mod. lam) 70.05-70.4m: crudely lam dac f. tuff 70.4-71.1m: well inter lam. cherty tuff, chert, tuff (25%) 71.1-71.9m: crudely lam. and. f. tuff 71.9-72.4: Interlam. and-dac tuff (70%), & cherty tuff. 72.4-74.3m: Poorly-crudely lam. and-dac f. tuff. 74.3-75.1m: well lam cherty tuff (70%), chert & dac tuff (20%). 75.1-75.3m: biege cherty tuff. 75.3-76.0m: Poorly lam. cherty tuff, x-cut by qtz veins	65 50	- tr-m chl +/- ser 69.9-70.8m: tr chl 70.8-72.2m: v chl 72.2-73.3m: m chl 73.3-74.8m: v-m ser +/- chl 74.8-76.0m: M-tr ser - loc massive milky wh. qtz vein at 75.3-75.5m with chl envelopes	- MVS-loc 3-5%, ave <1% py 69.9-70.6m: MVS 70.6-72.2m: tr-2% py 72.2-73.3m: 3-5% py as mg diss + discon str, c/a 50 73.3-75.0m: 1-2% py 75.0-75.5m: MVS 75.5-76.0m: <1% py	Litho: BCD 86563 70.3-71.1m Litho: BCD 86564 74.3-75.1m Litho: BCD 86565 75.5-76.0m
76.00 TO 80.60	RHYODAC. SILICF. TUFF or TUFFACEOUS CHERT	Colour - pale green-grey to lt-med grey/sl green Grain size - aph-vf Vv foliated, massive - somewhat mottled looking rhyodac silicified tuff or tuffaceous chert. Tend to think this is a tuffaceous chert owing to the above rocks, although locally cloudy irreg. qtz veins bx + silicify wallrocks. fol'n 15-40 76.6-78.5m: lt-m grey-green rhyodac tuff/ tuffaceous chert. 78.5-79.3m: vlt grey mottled, loc qtz veined tuffaceous chert or tuff 79.3-80.6m: lt-m grey rhyodac silif. tuff or tuffaceous chert. bottom ctc, sharp	15 40 80	- nil ser - perv silicfn(?) or primary - coarse	MVS	Note traces of bright green mica throughout Litho: BCD 86566 77.0-80.0m

FROM TO	ROCK TYPE	TEXTURE AND STRUCTURE	ANGLE TO CA	ALTERATION	MINERALISATION	REMARKS
80.60 TO 96.62	DIORITE, FP PORPH. & MG E.O.H.	Grain size - vf-med Vw foliated, fp porph. diorite, sheared diorite pseudobx, mg diorite (ilmenite bearing) 80.6-80.65m: vfg chill, lt-m green 80.65-84.0m: border phase fp porph. (<5%, (1-1mm FP) diorite. 84.0-88.2m: FP porph. (5-10% 1mm FP) diorite, fg gm, 3-5% blk oxides (ilmenite?) 88.2-89.4m: f.g. diorite pseudobx 89.4-92.6m: FP porph. (5-10% 1mm FP) diorite, fg gm 3-5% fg blk oxides (ilmenite?) 92.6-93.7m: f-mg weakly FP porph. diorite, 3-5% blk oxides. 93.7-95.8m: m-s shear diorite, approaching pseudobx, f-mg, 5-8% blk oxides 95.8-96.62m: mg diorite, 50% FP, 10% blk oxides (skeletal ilmenite?) 40% mafics		- v chl throughout - vw-v sel epz of FP - m-s calc irreg veins + flood in pseudobx - s irreg calc veins +/- flood	MVS	Note blk oxides probably ilmenite, weakly magnetic.

Sample	From (m)	To (m)	Length (m)	SIO2 %	AL2O3 %	CAO %	MGO %	NA2O %	K2O %	FEO %	MNO %	TIO2 %	BA %	CU PPM	ZN PPM	PB PPM	AG PPM	AU PPB	AS PPM	SB PPB	SR %	ZR %	TOTAL %
6556	6.00	9.00	3.00	73.21	13.58	0.74	2.87	0.35	2.74	3.77	.06	0.27	.109	7	29	9	0.4	5	1	3	.01	.006	97.72
6557	33.40	36.20	2.80	71.62	14.65	0.57	1.93	0.37	3.67	4.31	.03	0.36	.175	19	12	5	0.7	5	9	1	.01	.008	97.70
6558	39.90	42.90	3.00	79.51	11.21	0.56	1.17	0.95	2.53	1.46	.01	0.15	.158	48	6	6	0.4	10	6	1	.01	.005	97.72
6559	44.80	45.40	0.60	64.87	16.56	7.93	2.75	0.85	1.01	3.22	.07	0.31	.053	13	13	7	0.7	10	7	3	.06	.011	97.68
6560	51.00	51.60	0.60	74.82	13.53	0.83	1.81	3.13	1.86	1.35	.02	0.28	.093	4	6	8	0.5	5	8	2	.02	.007	97.76
6561	59.60	62.60	3.00	57.61	19.01	1.15	6.90	0.21	3.24	8.68	.09	0.74	.114	34	18	21	1.0	10	35	8	.01	.005	97.76
6562	65.80	66.30	0.50	73.58	12.27	1.17	2.97	4.16	0.34	2.91	.03	0.29	.015	5	10	4	0.9	5	17	2	.02	.005	97.76
6563	70.30	71.10	0.80	60.71	15.72	2.25	6.76	2.18	0.77	8.56	.09	0.61	.033	28	27	23	1.0	5	36	8	.02	.005	97.71
6564	74.30	75.10	0.80	67.39	16.18	0.98	2.98	2.04	2.86	4.38	.05	0.55	.137	53	14	11	0.9	5	10	1	.02	.005	97.51
6565	75.50	76.00	0.50	70.75	14.87	1.55	2.15	3.55	1.69	2.63	.03	0.49	.114	10	13	4	0.9	10	13	1	.02	.005	97.85



GEOLOGICAL BRANCH
ASSESSMENT REPORT

16,716

MINNOVA Inc.

CANAMERA OPTION

- 1987 -

DRILL HOLE LOCATIONS

0 50 100 150 200 250m

SCALE: 1:2500

N.T.S. 92B/13		MAP:
DRAWN BY: GW/dm		FIG.3a
DATE: NOV. 1987		

LEGEND

CRETACEOUS

- 4 — Nanaimo Group Sediments
- 3 — Diorite Intrusions(age unknown)

PALEOZOIC
SICKER GROUP

- 2 — Rhyolitic-Dacitic Volcanics
- 1 — Andesitic Volcanics
- ▬▬ — Mineralized chert, ash argillite (mine package)

SYMBOLS

- Shaft/old workings
- Bedding
- Anticline
- Syncline
- Fording Coal Lease South Boundary
- ○MTS40 — Drill hole collar location

N

CHEMAINUS RIVER

POSTUK-FULTON
PEPPA RESOURCES

QUEEN BEE
MTS-25
MTS-26
Postuk-Fulton

BELLE
NUGGET
CREEK
FAULT
MTS44

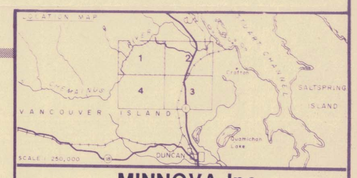
MORLEY-JAYNE
MTS35
MTS31
MTS-24
ESTELLE
FORTUNA FAULT

KEY CITY
MINE FAULT
MTS-23
MTS-19
MTS-22
MTS-21
TONY
MTS-20
XL
MTS-18
Lenora-Tyee
TYEE
RICHARD III
MONA
MTS43
MTS27
MTS41
MTS-27
MTS38
WESTHOLME
BLUEBELL
COPPER FAULT

FORDING COAL LEASE
(South Boundary)

DONALD
HERBERT
DOUBTFUL FR
THELMA FR
YANKEE FAULT
NORTHEAST
MTS40
MTS39
MTS42

Gabriel
Northeast Copper
TOM



MINNOVA Inc.

MT. SICKER PROPERTY

GENERALIZED GEOLOGY
1987 DRILL HOLE LOCATIONS

0 50 100 200 300 400 500 m
SCALE: 1:5000

November 1987		FIG. NO.:
DRAWN BY: HLG		
DATE: DEC. 1986	N.T.S. 92 B/13	FIG.3b

ROCKY 5
ROCKY 2
ROCKY 5
CF GROUP 7
CF GROUP 8
L20+00E
L25+00E
L30+00E
L35+00E
L40+00E
L45+00
L50+00E
BASELINE 1+83S
PEAR
PEACH
PEACH
PEACH
APPLE
APPLE
Whitehouse Creek
PEAR
SICKER 1
ROCKY 2
BC TEL
RELAY TOWER
OMTS33
SICKER 1
TIELINE 20-00S
△ LITTLE SICKER
MOUNTAIN
LAWARANCE
SICKER 2
SICKER 2
STRATFORD'S
CROSSING
MINES ROAD
Bonsall Creek

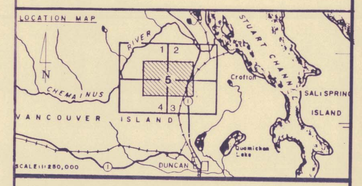
N

LEGEND

CLAIM BOUNDARIES

NOTE: CLAIM BOUNDARIES ARE APPROXIMATE
(FROM 1:50,000 GOVERNMENT CLAIM MAPS)

LOCATION MAP



MAJOR ROADS
SECONDARY ROADS
1986 LINECUTTING
EXISTING CUT GRID

GEOLOGICAL BRANCH
ASSESSMENT REPORT
16,716

MINNOV Inc.

MT. SICKER PROPERTY
ROCKY CLAIM GROUP

1987 DRILL HOLE LOCATIONS

0 100 200 500
SCALE: 1:5000 METRES

November 1987		FIG. NO.:
DRAWN BY. C.B.		
DATE: JAN. 1987	N.T.S. 92B/13	FIG.3c